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THE UNIVERSITY OF ALBERTA

ENGLISH INTONATIONAL 'ACCENT' IN RUSSIAN: AN EXPERIMENTAL STUDY

by

MARTHA CLAIRE GIBSON

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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ABSTRACT

This study investigates the effect of English intonational 'accent' on the Russian language from the point of view of native Russian speakers.

Scholars in the field of both English and Russian intonation view the role and function of intonation in language differently. Some problem areas are as follows: Can intonation be considered a properly linguistic phenomenon, or does it belong to the paralinguistic realm? How does intonation contribute to the meaning of an utterance? In what terms should intonational meaning be defined; grammatically/syntactically, as part of discourse and information processing, or in attitudinal/emotional terms? What is the best way to interpret and classify intonation contours; as holitic units each with a specific meaning or as a system of individual, meaningful tones?

The present experimental study approaches the field of intonation from an attitudinal/emotional point of view by examining similarities and differences in intonational meaning in Russian and English. The experiment investigates a native Russian emotional reaction to Russian spoken with an English intonational 'accent'. Subjects respond to utterances in Russian that have either Russian or English intonation contours. The contours are divided into the four syntactic categories of statement, wh-question, yes-no question and exclamation. Hypotheses are presented to predict possible reactions

using emotional/attitudinal parameters such as Angry, Sad, Critical, Surprised, Pleasant, etc.

Results were two-fold in nature. Some results supported hypotheses put forward by the author and various scholars that Russian speakers would consider English intonation in yes-no questions and exclamations to be Surprised and Indecisive and wh-questions to be Impolite. Other results were unexpected as Russian speakers found their own Russian intonation patterns to be Angry and Arrogant in yes-no questions and exclamations and Sad in statements. It is posited that for certain syntactic categories, subjects are reacting as true native speakers of Russian. For other categories, however, second language interference from English seems to be influencing judgements of native Russian contours to the extent that subjects are reacting as native English-speakers might.

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I. Introduction

A. Background

> ... intonation patterns are among the earliest linguistic features we learn and hence those of which we are least consciously aware...Yet our reactions to intonation are very deep-rooted and intense, because it is so closely associated with what it tells us (or what we interpret it as telling us) concerning the emotional attitude of the person(s) we are listening to. (Robert A. Hall Jr. Introductory Linguistics (Philadelphia, 1964: 117)

Intonation pattern is not the only parameter we must contend with when trying to interpret or understand an utterance but it is one of the most immediate and striking ones. It tells us what the speaker feels about the message he is uttering, what his attitude is towards us as listeners, what his reaction is to the entire conversational situation at the moment and maybe something about his approach to life in general. Intonation can add or subtract from the straightforward meaning of the message and even the grammatical category (eg. question or statement) of a specific utterance. And as far as we as listeners are concerned it may enhance or detract from our understanding of the utterance at any or all of these levels. How many times have we heard the refrain, "It's not what (s)he said; it's the way that (s)he said it." (Uldall 1964: 223) Obviously intonation has a great deal of influence over the ability of the speaker to convey meaning and over the listener's ability to comprehend that meaning. When intonational, grammatical or lexical meanings clash, intentions can be misunderstood, feelings can be hurt and the participants in a

conversation can all end up by being misinformed in some way. Such is the power of intonation.

These events of miscommunication have happened to everyone at one time or another but imagine these problems magnified ten-fold by the addition of another more complicated intonational effect, a foreign accent. It is not extreme to compare, as Van Riper (1969) does, having a foreign accent to having defective speech. An accent, like a lisp or a stammer, "calls attention to itself." Both can "interfere with communication or cause (their) possessor to be maladjusted." (in Chreist 1964: 16) An obvious element of an 'accent' is the mispronunciation of sounds and words of the language the 'foreigner' is trying to speak. He may say certain vowels or consonants strangely or put the stress on the wrong syllables. However, another striking element is that the melody of the speech may be somehow "off." The speaker's voice may rise in tone when a fall is expected or vice versa; he may sound like he's stating a fact when he thinks he's asking a question. Once again, when a speaker uses the wrong set of intonation patterns in this manner, the conversation can break down into unintended confusion, disagreement or embarrassment on the part of both the listener and the speaker. Hall warns us of the consequences. "The unconscious use and equally unconscious reactions to such uses of intonation patterns is one of the major sources of cross-cultural misunderstandings." (1964: 117) It is not an exaggeration to assert that intonational confusion contributes to the stereo-typing of entire cultures. North Americans

may consider an entire culture to be rude and arrogant and another to be whiny and incompetent based almost entirely on the way they happen to speak English. No doubt other cultural differences having to do with dress, manner, etc. are involved in this stereotyping, but speech and the intonation of this speech helps enormously in the formation of these types of impressions.

The author too has observed and experienced firsthand these 'foreign accents' which are part and parcel of a multi-cultured society, and has been variously discomfited, disquieted or felt affronted or puzzled by what a 'non-native' with a 'foreign accent' was saying in English. These feelings are then applied by association to the non-native himself. The speaker will probably remain oblivious to his erroneous intonation patterns unless communication breaks down to such an extent that someone must somehow identify his problem and set about correcting him. These scenarios conjure up a vast array of questions concerning the specific nature of the cultural confusion and the inherent intonational differences. What sorts of emotions are being (or not being) evoked by the speaker and felt by the listener? Are they the same emotions? How do these emotions change the perceived grammatical and lexical meaning of an utterance? Even the definition of intonation or at least intonational meaning comes into question here. The problem area is complex and has been studied by linguists, psychologists and educators, each with a different disciplinary approach and a different purpose in mind, and not just from the perspective of the English language. The 'foreign accent' tag

applies to any non-native speech from the point of view of native speakers of any language.

B. Problem

For such an obvious and persistent problem, the body of literature devoted to the interaction of accents and intonation has not been overly large nor by any means conclusive. This is due in part to the nature of intonation itself, a contentious area of study that has received much speculation and generated much anecdotal information but yielded remarkably little consensus on the major issues, the 'foreign accent' issue not excepted. There has been little hard, empirically valid evidence recorded for this latter issue in particular that would provide concrete, practical answers for some of the preceding questions. This is not to say that attempts have not been made, however. Observations have been recorded about the effects of foreign accents in general terms; studies have been done on the part intonation plays in conveying emotion; suggestions have been made about how intonation's function should be described and how language learners should go about learning another language's intonation patterns correctly.

The attempt to combine intonational and emotional theory specifically, has resulted in a concentration of studies on how emotion is best communicated vocally. Experiments have been performed by manipulating the intonational contours and gauging the emotional reactions to them. The opposite has also been done by

pre-setting certain intonational meanings and gauging reactions to them to determine which contour shapes indicate these meanings. These experiments have been performed to a large extent within a language but not so often across languages. The author proposes to partially fill this gap by performing an experiment with a similar base to the above studies but with emphasis on a different outcome and slightly different paramaters than is usually seen in the literature.

The experiment described here adopts a cross-cultural/linguistic view, using the languages of Russian and English. While learning the Russian language, the author found that particular attention had to be paid to using the correct intonation patterns, not merely in order to facilitate communication with Russians or to cultivate a good Russian 'accent', but in order to avoid downright confusion and misunderstanding of purpose or feelings between herself and a native Russian. Obviously these mistakes must cause some sort of reaction by the Russians to our English-accented Russian in the same way that we react to Russian-accented English. And there is little doubt that negative impressions are created in both directions. In the midst of an English speaking society it is relatively easy to find out our impressions of the Russian language and the impact it has on the English language. The author wanted to investigate the other side of the story. What kind of emotional reaction would Russians have to Russian with an English accent, the accent consisting of English intonation patterns? To the author's knowledge there has been no

experiment performed to date designed to test for this question using Russian and English.

The design of the proposed experiment and the reasons behind it are as follows. Ten emotions or attitudes were chosen from among those used in previous studies to reflect the potential or possible intonational differences between Russian and English from a Russian perspective. (Eg. Angry, Sad, Polite, Surprised, etc.) These emotions are to be designated as tools to measure subjects reaction and are not the immediate target of the study themselves. Intonation contours are most often differentiated and learned by grammatical category. Therefore, the four grammatical categories Declarative Statement, Wh-question, Yes-No question, Exclamation were used as a guide to the different intonation contour forms which are to be compared in the experiment. In this way both the form and one aspect of the meaning (grammatical) of the control data have been pre-set in one language in order to measure the impact these paramaters have on the intonational meaning, or emotional meaning in another language. The above fixed and independent variables were combined in a test setting that would force subjects to articulate their instinctive emotional responses to a Russian utterance spoken with an English intonational pattern. Just what the English intonation pattern would sound like was determined when the Russian utterances were imitated in English both in lexical meaning and in syllable number and placement of strong and weak stress. The native-Russian control speaker then mimicked the native-English intonation contour onto the

corresponding Russian test sentence. Interspersed randomly among these utterances with the wrong intonation for Russian, were the same sentences with the correct Russian intonation patterns in order to have a set of control data which could be compared to the experimental data. The responses to the 'correct' control data will therefore be considered as the normative reactions and the responses to the 'wrong' data, as representative of typical opinions of an English 'accent' by Russians.

The author's impression of an English speaker's typical reaction to Russian intonation in English is the automatic assumption that the speaker is angry or dissatisfied at the moment, or, with prolonged contact, that the speaker is being overly brusque and even rude for the context. This is despite the fact that the words the speaker is using may not correspond to an impolite or rude attitude and that the speaker is no doubt believing him- or herself to be engaged in normal friendly conversation. What will the Russians think of an English speaker's attempt to speak Russian? The automatic assumption is that they will think the opposite in just as negative a fashion-- that he is being overly friendly or cheerful or polite to the point of obsequiousness. Or perhaps he will sound too tentative and not assertive enough for the context. There are obviously many such possibilities.

The author hopes to provide some answers to these suggestions and to questions posed by other scholars with the results of this experiment. Which specific contours produce which emotions and

why? How do the Russian and English equivalent contours compare by the type of emotion prompted, eg. positive or negative emotions? How much of a role do the separate grammatical categories play in categorizing the different types of emotional reaction? By answering these questions it may be possible finally to clarify the function that intonation has in defining a culture's impressions of non-native speech and of the non-natives themselves.

C. Overview

That some sort of verifiable, replicable evidence is necessary, no matter how limited in scope, will be more evident to the reader from the literature review to follow in Chapter II. In it studies and observations made to date on this subject are documented in the field of the Russian language, the English language and finally in the more rare Russian and English comparisons. The experiment will test hypotheses which incorporate both the author's and other scholarly opinions, e.g., that statements with English intonation will be perceived as more Bored or that English Yes-no questions will be considered Indecisive.

Chapter III is devoted to the experiment itself and the collected statistical results. The resultant implications and problems from this data are then discussed in Chapter IV. Conclusions are drawn in Chapter V that should provide insight into the success or failure of the present experiment. The theories and conclusions of intonational scholars will also be discussed and finally, possible areas of future research will be considered.

II. Review of Literature on Intonation

A. Literature on English Intonation

i. Descriptive Works

Scholars in the field of English intonation hold widely disparate views concerning the role that intonation plays in conveying meaning and information in language. Problem areas include disagreement as to its primary and secondary functions, whether it belongs in principle to the linguistic or paralinguistic[1] realm, and which specific parameters should be used to define it or to measure its impact in utterances. Ladd, Scherer and Silverman (1986) define the longstanding problem succinctly, paraphrased as the following. Is there a direct, measurable link between intonation and attitude, intonation being considered as one element in a complex system of non-verbal acoustic parameters? Or is intonation chiefly grammatical in nature with specific forms and functions -- its emotional aspect inferable and inseparable from the entire intonational context?

The following is a necessarily brief overview of some of the theories surrounding the concept of intonational meaning in English.

An example of an extreme view regarding the degree of importance that intonation should be accorded in conveying meaning is illustrated by Hultzen (1962) who believes intonation has virtually no role to play. "For the greatest part of intonation surely conveys no information whatever...The tone that must accompany the words when spoken is merely appropriate, not informing. It is only when the

intonation denies the straightforward meaning of the words that it can be said to have any function."(658) This function is purely grammatical in nature. It distinguishes requests from commands and statements from questions for example. Hultzen's view is not representative of the majority of linguists. The other extreme could be Bolinger's (1972) assertion that, "The question of emotion is not a mere side issue where intonation as a part of language is concerned, for it is next to impossible to separate emotional meanings from grammatical ones." (234) Most linguists agree that intonation conveys some sort of meaning in an utterance but differ in their account of the methods English employs to convey this meaning. One approach views intonation from a Structuralist perspective in that an intonation contour can be broken down into separate units or segments called tones or pitches that operate as a system of discrete, meaningful, contrastive morphemes. In this system rules operate on these morphemes or tonemes to produce well-formed utterances. In effect, an intonational lexicon is said to exist that works in harmony with the lexicon, syntax and phonology of a language to create meaningful utterances. Proponents of this theory and its variations are scholars such as Pike, Liberman, Trager and Smith, Gussenhoven, Crystal and Brazil.

For Pike (1945), intonational meaning is "merely a shade of meaning added to or superimposed upon <the> intrinsic, lexical meaning."(21) His is the most explicit proposal of an 'intonational

lexicon' in which these 'shades of meaning' are applied (as the situation demands) to a sentence's lexical structure. Liberman (1978) defines and organizes the function of the intonational lexicon such that, "the meanings of these (ideophonic) words are extremely abstract properties, which pick out classes of situations related in some intuitively, reasonable, but highly metaphorical way; the general 'meaning' seems hopelessly vague and difficult to pin down, yet the application to a particular usage is vivid, effective and often very exact."(94)

Halliday (1967) and others view these 'particular usages' as primarily grammatical in nature. This is because for Halliday "all contrast in meaning can be stated in either grammar or in lexis," and since intonation contrasts in English are "clearly not lexical," then they must be grammatical. (in Brazil 1980: 10) Trager and Smith (1951) also firmly believe that intonation meaning is both a linguistic and grammatical phenomenon. Their 'lexicon' is a complex system of rhythm, pitch levels and junctures whose primary function is to make "the tasks involved in recognizing constituents and parts of speech into solidly established procedures, removing once and for all the necessity of defending one's judgements as to what goes with what." (77)

Linguists like Ladd, O'Connor and Arnold, Brazil and Crystal propose their own modifications of the stuctural tone or pitch level analysis. For them tones are viewed against a situational or speech act background. Brazil (1980), for example, does not consider the

relationship between tone units (he has four; *rise, fall, rise-fall, fall-rise*) to exist solely to indicate the constituent structure of a sentence. Intonational meaning is an integral component of a speech act involving interaction and the relationship between speaker and hearer. For instance, the tones fall and rise-fall (intensified) are *Proclaiming* tones introducing new information; fall-rise (unmarked) and high rise (intensified) are *Referring* tones marking information as shared common knowledge between speaker and hearer. Low rise and level tones are *Neutral,* signalling a withdrawl by the speaker from the interactive situation.

Crystal (1975) also combines grammatical and relational functions of the tones depending on their position in the utterance. His tones include, level (absence of emotional involvement), low rise (non-commital; friendly), low fall (neutral; abrupt), high fall (emphasis; surprise), high rise (query, puzzlement), fall-rise (uncertainty, doubt, suspicion), rise-fall (impressed; satisfaction). Lindsey's (1981) interpretation of such types of tones incorporates grammatical, attitudinal and relational parameters.

> "High pitch tends to indicate interest and involvement on the part of the speaker, while low pitch tends to indicate the opposite (just as greater or lesser loudness will imply greater or lesser involvement); great variation in pitch over a given utterance tends to indicate stronger emotions on the part of the speaker, while a monotone tends to indicate less emotion... and direction at the end of the utterance towards or away from low pitch, which I take to be in some sense 'neutral', tends to indicate completeness or

incompleteness of a sentence or a topic or an idea."(18)

Ladd (1980) continues in the same vein, emphasizing the complexity of character of intonational meaning. It must be that intonational and lexical segments work congruently to express meaning because "speakers can express many subtly different attitudes or point of view by both segmental (ie. lexical) and intonational methods." (125) Consequently, there is, in his view, no reason that intonation should be associated with simply one primary function. Bolinger (1972) also agrees that the meaning of intonation cannot be considered one-dimensional. "Intonation is a half-tamed servant of language. The rise and fall can be thought of as grammatical signals of completeness and incompleteness, or as emotional guages of tension and relaxation. Adding intonation, we turn each logical message into an act of will." (29)

Cutler (1977) strongly agrees with such views by Ladd and Bolinger while adding another facet to the problem; "...effects exercised by intonation contours can be shown to be context dependent to such a degree that the attempt to extract from them an element of commonality valid in all contexts must be reckoned a futile endeavor." (106)

The question of whether intonation is properly linguistic or paralinguistic, and whether it should be considered as having context-free or context-dependent meaning have not yet been resolved. Both Bolinger (1961) and Crystal (1969) have suggested a

compromise by positing a graded continuum of 'linguisticness'. Bolinger says "Either an intonation phenomenon is there or it's not; but if it's there, it can be there a little or a lot." (in Ladd 1980:109) The tones themselves (*fall, fall-rise, high rise, low rise*) belong to the all-or-none category, whereas pitch range, loudness and tempo would belong to the dimension of gradience.

A second major approach views the whole intonation contour as an autonomous functional unit or linguistic signal and emphasizes its holistic meaning. Proponents of this approach do not deny that a contour is composed of smaller parts, only that these parts are not semantically relevant. The point of division within a sentence is the position of the sentential stress. Thus, Palmer (1922) and O'Connor and Arnold (1973), for example, divide each contour into components such as prehead and head, which occur before sentential stress, and nucleus and tail, which occur after the stress. They further suggest that the meaning of intonation units varies with sentence type and lexical content, thereby effectively eliminating the need for a system of fixed tones with fixed, predictable meaning. According to them, one of intonation's major functions is once again to express "the speaker's attitude to the situation in which he is placed."(2) They find ten types of tone units in which this meaning is expressed in combination with the type of sentence used, ie. statement, question, command, interjection. Armstrong and Ward (1926) manage to reduce English intonation to two tunes "with variations due to special

circumstances." (4) Tune I has a rising final pitch, Tune II a falling final pitch. These categories are intended to mirror the grammatical categories of question and statement/imperative respectively. An example of an extreme view of this approach is Glenn's (1977) proposal that entire contours be linked to particular speech acts.

Liberman and Sag (1974) contributed to this search for precise meanings and functions of specific contours by identifying an English 'contradiction' contour and a 'surprise-redundancy' contour. An example of the former is, "Elephantiasis isn't incurable." in which a fall-rise tune is heard over the whole utterance with a distinct terminal rise. (In Ladd 1980: 14) An example of the latter is, "The blackboard's painted orange." (in Ladd 1980:15) This system integrates the theory of static pitch 'tonemes', so that the surprise contour, for example, always contains the three tonemes, (-H), (+H), (-H).

Clearly, at this point in the investigation into the definition and function of English intonation, there has been and continues to be much speculation but little consensus among researchers as to the proper status of its emotional aspect and how, why or even if it warrants legitimate linguistic standing. The current trend, at least in the theoretical literature, seems to point in the direction of some sort of compromise among the differing approaches.

ii. Reports on Experiments

The task of pinpointing the emotional correlates of intonation has occupied linguists since the 1920's. The range of focus has shifted from a view of intonation as simply one of the many prosodic, non-verbal parameters involved in communication including loudness, tempo, timbre of speech, to narrowing in on the relationship between specific intonational contours and specific emotions operating within and across languages.

One such narrow focus intonation study was done first in 1959 and then in 1964 by Elizabeth Uldall. She set out to reduce the number of terms to describe emotional meaning in intonation and to thereby produce a set of useful and meaningful descriptions of English intonation patterns. She divided utterance types grammatically first into statement, yes-no question, wh-word question and command. The possibility of emotion being inadvertantly introduced by lexical content or context was partially controlled by having the utterances all refer to aspects of a 'meeting' and making them "suitable as remarks between social equals."(274) She then applied sixteen artificial intonation contours onto these sentences with deliberate variations in range of pitch, pitch level and direction of pitch. Fourteen different seven-point emotional scales were available for each contour. Some examples are bored-interested, timid-confident, authoritative-submissive, weak-strong (feeling), etc. In her results, Uldall found the main 'dimensions of meaning' (275) to be

pleasant-unpleasant, authoritative-submissive and strong-weak. Each contour was then given an emotional profile. For example, No. 8 contour (a gradual fall plus abrupt high rise), was invariably rated as 'unpleasant, authoritative and weak' for statements and both question types, and as 'unpleasant, authoritative, strong' for commands. From the opposite angle, 'pleasant' contours always end in high rises and involve a change in pitch direction. Strong feeling contours always involve a wide pitch range, change of direction and lowered weak syllables. Other conclusions were that the less 'lively' or more 'smooth' a contour is, the more variable it is in meaning, and vice versa; 'lively' contours are more likely to be stable in sematic meaning. Uldall also concludes that the less lively or interesting a contour is, the more the content of the sentence has an influence on the judgement of its total effect.

Ladd (l980) strongly objects to attempts to discover and generalize any particular meaning and correlate it to any specific intonation contour. In his opinion experiments like Uldall's start from meaning and work towards form when it should be done the other way around. He also rejects Uldall's set of 16 contours by claiming that they are not all different from each other but merely a smaller set with many gradiently distinct versions of each other. He says this is a result of Uldall ignoring the distinction between tone and pitch range.

Davitz and Davitz (1959) worked with the intonational aspect of

English speech by attempting to eliminate the emotional biases that lexical items contribute to any utterance in their investigation of the power of content-free speech to communicate emotion. To this end, their speech sample consisted of letters of the alphabet read in a discourse speaking tone, with superimposed emotions of Anger, Fear, Happiness, Jealousy, Love, Nervousness, Pride, Sadness, Satisfaction, Sympathy, and Neutrality. Subjects then heard eight other subjects produce these ten feelings for a total of 80 judgements each. The Davitzes were interested not only in the number of times each feeling was correctly identified and accurately judged, but in the finding that some feelings were mistaken for others beyond chance expectancy in consistent patterns. For example, Pride was correctly identified 50 times but mistaken for Satisfaction 48 times and Happiness 37 times, whereas Anger was correctly identified 150 times. This is an interesting companion finding to Uldall's since Anger would be expected to be a more 'lively' contour than a 'smooth' one and therefore more readily and clearly identifiable. Furthermore, it could be conjectured that emotions like Pride and Love, which were only correctly identified about one-third of the time, could belong to 'smooth' contour shapes. Thus, without a large variation in actual contour parameters or lexical content cues to act as a signal, other possibly less accurate vocal parameters such as volume, rate, etc., must be relied upon to communicate the emotion by themselves.

Lieberman and Michaels (1962) were next in line to phonetically

test for acoustic determinants of emotional speech. They were specifically interested in ascertaining the degree of contribution that perturbations in fundamental frequency and amplitude make in this process. Three male native English speakers read eight lexically neutral sentences in eight 'emotional modes': 1) bored statement 2) confidential communication 3) question expressing disbelief or doubt 4) message expressing fear 5) message expressing happiness 6) objective question 7) objective statement 8) pompous statement. The inclusion of grammatical categories such as question and statment by Lieberman and Michaels as an 'emotional mode' reflects once again the less than clear definition and classification of emotional meaning at the time. Five synthetic recordings were then made of these control stimuli in which different acoustic parameters were altered.

The data indicated that, overall, pitch smoothing reduced correct responses. Listeners were able to correctly identify emotional content of unaltered speech 85% of the time. Unaltered speech contained the following acoustic paramters; pitch information, amplitude information, gross and fine changes in fundamental frequency, speech envelope amplitude and phonetic content. It then dropped to 44% with only pitch information present and 47% if amplitude information and pitch information only were left intact. It was concluded that 1) fundamental frequency alone wasn't able to transmit full emotional information and 2) that amplitude information plays a small but significant part in correctly recognizing emotions. As regards the emotions themselves, it was

noted that the emotional 'modes' do not all make use of the same parameters to the same extent. For instance, Boredom (statement) is 'highly resistant' (in Bolinger 1972: 241) to confusion under any condition, whereas Confidential has a greater tendency to be confused under all conditions. Fear depends more heavily than other modes on amplitude information and questions depend more heavily on pitch information than the others. Overall conclusions were that there doesn't exist one single correlate with emotional modes in the experiment. The order of their importance was phonetic (segmental) content, gross changes in fundamental frequency, fine structure of fundamental frequency and speech envelope amplitude.

Davitz was prolific in his investigation of communication of human emotions into the 60's. One of his experiments (1964) focused on general auditory correlates of vocal expression, in which intonation, characterized as pitch, was rated along with loudness, timbre and rate of speech. Fourteen different emotions were expressed using a short paragraph. Using Osgood *et al's* 1957 variables of emotional meaning, i.e. Valence, Strength and Activity, as a guide, Davitz wanted to test how these three parameters were correlated with the four auditory correlates. Twenty judges rated each emotion on four seven-point scales; loud-soft, high-low pitch, blaring-resonant pitch, fast-slow rate of speech. Another set of judges rated the paragraphs on nine scales of Semantic Differential including Valence (good-bad, pleasant-unpleasant, beautiful-ugly), Strength (strong-weak, large-small, heavy-light) and Activity

(fast-slow, active-passive, sharp-dull). Activity level was concluded to be the most salient function of the auditory cues of loudness, pitch, timbre and rate. Again, those emotions which were mistaken for others were analyzed according to the nine Semantic scales. It was found that "erroneous judgements of vocal expressions of feeling are more similar to the feeling intended in terms of activity than in terms of either valence, or strength." (108) For example, Despair was mistakenly identified as Affection or Boredom more than as Anger or Joy. It was noted that Affection, Boredom and Despair were grouped together at the passive end of the Activity continuum, while Anger and Joy were at the top of it in the Active area. Conversely, Fear was incorrectly identifed as Joy or Anger, its companions at the active top of the Activity scale, more often than Admiration or Despair which were lower down on the scale. These error patterns led Davitz to conclude, that "...the activity aspect of emotional meaning is carried by the relatively simpler elements of the vocal symbol, such as pitch or loudness, while both valence and strength are probably communicated by subtler, and perhaps more complex, vocal patterns of inflection, rhythm, etc." (109)

Most experiments dealing with communication of emotional meaning work from the emotion towards vocal parameters, unlike Uldall who starts with the intonation parameter itself and documents the applicable emotions. In early emotion experiments, however, emphasis was simply on how emotions could be differentiated. Fairbanks and Hoaglin (1941) found that feelings like anger, grief and

contempt could be differentiated in terms of rate, pause to phonation time and range and rate of change of pitch. Anger had a fast rate and Fear had a relatively high pitch. Skinner (1935) also found that pitch consistently and reliably discriminated expressions of happiness and sadness. Anxiety, on the other hand, has been a problem emotion as wide individual differences have been reported by researchers of vocal expression.

Another approach taken by researchers of the 70's was the ability to communicate emotion in relation to degree of acquaintanceship between speaker and hearer. These experiments also included some degree of intonation as part of the 'non-verbal cues of emotion' package. Zuckerman *et al* (1975) tested a large number of parameters involved in encoding and decoding nonverbal cues of emotion that included visual versus auditory cues, sex of speaker and hearer, level of acquaintance. Relevant here are their results that "decoding scores varied according to channel of communication and type of emotion transmitted." (1068) They found that 'positive' emotions were better identified in visual channel than negative emotions, but this did not hold true for the auditory channel. Specifically, Happiness, Sadness and Anger were identified much better in the auditory channel than in the visual channel suggesting some degree of compensation by each channel depending on the emotion. Zeidel (1969) also tested the facial-vocal channel but along a like-dislike and positive-negative continuum instead of using a matching method of specific emotions. Zeidel's results led her to conclude that our culture tends to

discourage explicit or verbal expressions of negative attitudes so that non-verbal or facial channels have largely taken over these functions.

An interesting series of experiments was conducted for the Dutch language by Renee Van Bezooyen (1984) that closely parallel Davitz's experiments twenty years earlier in hypothesis and result. Van Bezooyen tested Dutch perceptions of emotion in Dutch sentences and also did a cross-cultural comparison of Dutch, Taiwanese and Japanese perceptions of the same sentences. The intonation parameters used by Van Bezooyen were pitch level, pitch range, loudness and tempo. She also found, as Davitz did, that the 'activity dimension' figured heavily in judgements made by listeners so that loudness was the most powerful discriminating factor for emotion among loudness, laryngeal tension, pitch range. Van Bezooyen was so struck by the way that different emotions tended to be grouped along this dimension of activity that she formulated a continuum for this dimension. Shame, Neutral and Sadness are located at the extreme left of the continuum, involving the least amount of activity; Interest, Disgust and Fear are in the middle, and Joy, Surprise and Anger are at the far right at highest activity level. Van Bezooyen stopped short of classifying emotions as positive or negative in terms of evaluative emotional meaning as she found no consistent agreement of intonation parameters to be assigned to one or the other. She does find, however, clusters of negative versus non-negative types of emotions

and is able to conclude, like Davitz, that "in cases where emotions belonging to different clusters were confused, there appeared a weak tendency to confuse emotions similar in level of activity rather than emotions similar in evaluative meaning." (144) She also found that past a certain point, the addition of further variables for subjects to judge did not increase the number of utterances correctly identified.

Van Bezooyen also examined cultural differences in ability to identify Dutch vocal expressions of emotion. Not surprisingly, Dutch subjects did twice as well as Taiwanese or Japanese subjects in this task. Nevertheless, statistical evidence suggests the existence of cross-cultural or even universally recognizable characteristics of vocal emotional expression, as the foreign subjects were able to identify all but one of the emotions (Shame) beyond chance expectancy. For these groups Neutral, Sadness, Anger were generally fairly easy to recognize and Disgust, Shame, Contempt were rather difficult to recognize. Interest occupied a mid-position. Joy turned out to be a culturally dependent emotion as it was the second best recognized emotion in the Dutch experiment, but came out as second and third worst in the Taiwanese and Japanese experiments respectively. This may also be a result of the fact that Joy is apparently communicated in large part by facial and not so much by vocal expression.

Cross-cultural studies such as the above are useful in that they narrow down targets of intonational confusion among languages in expression of emotion. The next step is to determine if it is the

emotion itself which is confusing or if the confusion is somehow caused by the differences in intonation patterns among the languages. The theories of the role or function of intonation could then be put to the test using such expressions of emotion. The results of a cross-linguistic experiment might help pinpoint the role of intonation not only across languages but within each language.

Notes

[1]While 'linguistic' and 'paralinguistic' elements of intonation are defined differently by different writers, a traditional distinction is that "linguistic distinctions of intonation are contrasts (e.g. syntactic categories) and that anything not organized into all-or-none contrasts is by defintion paralinguistic." (e.g. emotive, expressive uses) (in Ladd 1980: 102)

B. Literature on Russian Intonation

There appears to be less disagreement among Russian intonation scholars than English intonation scholars as to the place and function of intonation within the language system. It is usually considered as a sum of components such as melody, pauses, tempo, timbre etc. Its major function is usually described syntactically and in terms of communicative value. Thus, it separates elements of an utterance into separate syntagms and helps in forming different syntactic constructions and sentence types. Scholars also agree that intonation has an expressive or emotional function which conveys meaning added by the speaker. When the area under discussion is how emotional meaning should be integrated into the components of intonation and how the resulting contours or melodies should be classifed and interpreted then the discrepancies among theories start to appear.

For instance, in 1922 V.N. Vsevolodsky-Gerngross counted sixteen different intonation patterns in Russian; 'question, exclamation, surprise, vocative, affirmative, convincing, instructive, positive, pleading, invitation, admonishing, imperative, comparing, the intonation of pauses or conjunction, enumerating, narrative and indifference.' (in Bulanin: 168) In 1953 V.A. Artemov expanded this number to twenty-two based on results of the pronunciation of the one-word sentence "Ostorozhno" or 'Careful'. These were; 'polite request, assertion, warning, invitation, insult, enumeration, request, narration, comparison, indifference, surprise, admonishment, urgent command, lecture, command, persuasion, emotional request,

amazement, threat, strong threat, question, exclamation."(in Bulanin: 168)

There is an obvious blurring in the above of emotional or attitudinal categories with grammatical or syntactic categories. This is not uncommon among Russian intonation scholars when they work from the actual shape of an intonational contour towards its grammatically or emotionally charged meaning.

E. A. Bryzgunova investigated the basic intonational melody of a sentence, and standardized seven Russian melody contours that she feels describe all grammatically meaningful differences in sentence type in spoken Russian. Her approach is holistic in that she deals strictly with intonation contours as complete units with separate, grammatical functions. The context or speech situation may also play a role in determining the appropriate contour to use although she tends to avoid the question of emotional overtones. The contours themselves are described in terms of pitch levels, range and direction as follows. **IK-1** (Intonational Contour) consists of level tones with a falling tone on the nucleus and continued low tone on the rest of the utterance. This contour characterizes neutral assertions or simple declarative sentences which express finality of thought. E.g. 'Tam stoit Anton.' (17) **IK-2** differs from IK-1 only in the greater degree of stress given to the accented syllable in the nucleus. This contour can be used for expressions of contrast (with IK-1), in expressions of salutation, exclamations, demands and in wh-word questions. E.g. 'Kto

tam stoit?' **IK-3** is used almost exclusively in questions without a wh-word, that is yes-no questions. It is characterized by a sharp rise in tone from mid-level on the nucleus with an immediate drop to low tone on the next syllable until the end of the utterance. E.g. 'Éto vasha komnata?' This contour can also appear in incomplete clauses, or comparative sentences with IK-1 finishing the sentence, as in listing intonation. E.g. 'Anton, Zoja, Sasha pojut.'

In **IK-4**, the pre-nuclear tone is at a mid speaking level followed by a drop in tone on the nucleus and a sharp rise up to a high level which continues till the end of the utterance. E.g. 'Ja idu. A vy?' It appears mostly in interrogative sentences which are conjoined in meaning with the previous sentence. It is also used, like IK-3, in clauses in incomplete sentences, for comparison and listing, but in more official situations, such as on television or radio. The remaining intonational contours are more specialized in terms of context. **IK-5** is used only in exclamations with exclamation words such as kak, skol'ko, etc. This utterance has two nuclei. The first nucleus is reached when the speaker's normal tone rises to a high tone. The tone remains high until the next nucleus, when it falls to the previous tone. The remainder of the utterance stays at this lower tone. E.g. 'Kakoj den' sevodnja!' (58) IK-6 equals the first half of IK-5 in form, but the high tone after the rise is maintained over the whole sentence. **IK-6** only occurs in literary or poetic style of exclamations with and without prepositions, such as in echo questions. E.g. 'Veter teplyj!' Thus Bryzgunova claims that IK-4, IK-5,

and IK-6 occur in many similar grammatical situations but differ in stylistic character. IK-3 is used in informal speech, IK-4 in official speech and IK-6 in solemn lofty speech.

With an added **IK-7** (1977), Bryzgunova introduces an emotional colouring into her contour definition, not present in her other contours. IK-7 is identical to IK-3 except that the rising pitch ends in a glottal stop. The contour is not used as a question but for 'emphatic' assertions. (in Keijsper 1983: 139)

C. E. Keijsper (1978) examined some of Bryzgunova's intonational contours for their communicative value and function from the point of view of a speaker and hearer engaged in discourse. According to Keijsper, the function of intonation in the process of communication "consists in signalling if and when the projection (utterance) being transmitted identifies the thing or situation of which the speaker wants to evoke the thought." (219) In other words, the message that the speaker has chosen to project must communicate the situation which must be thought of by the listener, as well as any other situations he could have evoked with the message, but did not. IK-1, for instance, evokes the completion of this process such that "no further specification is necessary to make the projection (utterance) identify the thing or situation" (219), and further that it marks the correct choice being made from among other choices within the same set. IK-3, on the other hand, designates the opposite situation. The speaker has either not yet made his choice and will make further ones

or he does not affirm that his choice is the correct one. IK-4 has an intrinsic meaning of juxtaposition in incomplete interrogative utterances in that it serves as a separate prelude to a more complex and complete utterance to follow. It is always linked semantically to the previous utterance. IK-6 Keijsper treats similarly to IK-3. It also signals incompleteness in an utterance signalling that the communication must be continued. It says nothing, however, about the correctness of the choice of utterance like IK-3, only that more information will be revealed.

This type of situational-communicational approach to intonational meaning was also popular with Russian linguists in the 1970's. Scholars such as Torsueva, Nikolaeva, Zinder, Bulanin and Kuznetsova acknowledge Bryzgunova's IK system but steer away from it and concentrate on their own systems of how Russian intonation conveys meaning.

Torsueva (1979) believes intonation has two essential functions; communication and expression. Communication does not include articulation; articulation and intonation have separate functions. The communicative function encompasses a declaration of the speaker's attitude plus the choice of the type of communication (eg. question, order, exclamation). In her book 'Intonatsija i smysl vyskazyvanija', intonation is treated as the basic unit of communication. Torsueva performed an experiment which started from the premise that the degree of emotion existing in an oral narrative depends on the

speaking situation or context. She focuses on the location of the appearance of emotion in different communicative types of utterances in order to help identify the specialized emotion-producing mechanisms that exist in language. In doing so she was trying to refute Zvegintsev's (1975) claim that linguistics has no guidelines to properly define the emotional content or meaning of a word. In her experiment Torsueva has ten texts of eight phrases each read by three males and three females. Each text contains a dialogue of basic sentence types, including narrative, question, order, exclamation and implication[1]. Subjects rated the sentences on a three-point scale of 1-- large degree of emotional content to 3-- weak degree of emotional content. The sentences judged as most emotional were exclamations, orders and implications. Questions and 'specialized questions' were judged to be less emotional and simple assertions and narratives least emotional of all. It was therefore concluded that degree of emotion varies with communicative type.

Torsueva went further to test whether or not concrete communicative types could be associated with specific emotions given the basic hypothesis that any emotion can be attached to any sentence type. Six subjects heard dialogues containing questions, exclamations, etc. and were required to record the emotion they believed was expressed. It was found that Indifference and Annoyance could be attached equally to all communication types. Amazement and Gladness predominated in interrogative sentences. In narrative sentences Regret, Grief, Sadness and Dissatisfaction prevailed.

Implications were most associated with Amazement, Regret, Grief, Sadness, Insult and Resentment. Exclamations were associated most with Satisfaction, Regret, Annoyance, Delight and Rapture. In this experiment Torsueva also corroborated earlier evidence (1964 and Vinogradov 1955), that the emotional declaration of speech was staged characteristically by words at the beginning of the sentence. This is a claim Torsueva made in the opposite way by stating that the greater the degree of emotion in a sentence, the more often the sentence would begin with 'important' elements. (1979: 44) Her conclusion here was that there is a correlation between communicative type of utterance, its meaningful elements and its degree of emotional content.

L.R. Zinder (1979) also has a two part view of intonation, identifying a communicative function and an emotional function, but he is more sceptical than Torsuyeva as to how concretely and autonomously intonation operates in the expression of emotion. He sees the communicative function as marking the basic communicative type of utterance, question, answer, etc. whether or not the expression or clause is completed. The emotional function always reflects the emotional state of the speaker and sometimes the extent of his relationship with the listener. This model is patterned after Trubetskoy's (1929) model of three functions of vocal expression in speech, 1) explicative - same as communicative above, 2) appelative - concerning the influence on the listener and 3) expressive -

identifying personality of speaker and his membership in a certain societal group. Zinder does not consider the emotional aspect of intonation to be obligatorily tied to the meaning of the content of an expression. In other words, the denotative meaning of an utterance does not change despite the accompanying intonation. This denotative aspect exists alongside the connotative aspect (relationship of the speaker to the communicative act). It seems as if Zinder has no fixed position regarding the question of the universal or fixed nature of intonational meaning. He relies on Peshkovskiy's (1959) assertion that, "V ogromnom zhe bol'shinstve sluchaev intonatsiionnye sredstva otlichajutsja podvizhnym, svobodnym xarakterom...oni, tak skazat', blugdajut po grammaticheskoj poverxnosti jazyka, i, èto, nesomnenno i uderzhivaet mnogix lingvistov ot vkluchenija ix v chislo grammaticheskix priznakov" (Izbrannye trudy, 'Intonatsija i grammatika,' (191) Zinder says that disregarding this view of intonation's complex relationship to syntax causes scholars to link syntax and intonation in a purely linear fashion and so end up justifying the view that each type of sentence has its own intonation contour. He believes that though the syntactic aspect of intonation takes part in the formation of a sentence, it merely expresses a general category of sentence type and does not illustrate a concrete inner relationship of the sentence or between sentences. (271) Thus, Zinder disagrees with a system such as Bryzgunova's in which there is a direct and fixed link between sentence type and intonational contour.

Matusevich (1976) also questions Bryzgunova's system but for a different reason. She says, "Ètot vopros eshche nedostatochno izuchen dlja togo, chtoby mozhno bylo kategoricheski utverzhdat', chto ix imenno pjat' i davat' ix v posobii dlja studentov."(244) In her view, intonation cannot be a subjective or individually arbitrary phenomenon since it allows us to understand all vocal speech, and further that it must be used in conjunction and cooperation with the grammatical structure of a language. (241) Again, its function is divided into two areas, grammatical and emotional. The grammatical function is to differentiate sentences, show separate syntagms, isolate words and show different usages of words. The emotional function has two schemes, the intellectual or logical side and the emotional or volitional side. However, emotion expressed by intonation is given a subordinate status in favour of the lexicon which she says is the primary method used to convey emotion. Intonation per se functions in the emotional area mainly to make speech maximally expressive and secondarily to express the relationship between speaker and hearer. Her grammatical contours include questions of two types, those with a rising melody (yes-no questions, incomplete questions) and those with a high melody that lowers (wh-word questions, inverted phrase and echo questions); commands have a rise in tone with a drop at the end. Exclamations are also of two types, those using an exclamation word and those statements, questions etc. which have become exclamations by virtue of a higher

overall tone with either a sharp rise or drop on the penultimate syllable before returning to mid level. Variants of any of these melodic contours depend on the amount and type of emotion expressed. Emotions themselves Matusévich divides into categories of positive and negative with the possibility of even more groupings. Positive emotions include Joy, Love, Sympathy, etc. Negative emotions include Irony, Contempt, Indignation, etc.

L.L. Bulanin (1970) is another phonetican who tries to incorporate intonation's role in expression of 'meaning, feeling and will' (167) and in the 'emotional colouring of speech' (167). His major criterion for division is 'completed' versus 'uncompleted' syntagms. The two basic contours for completed syntagms are the narrative sentence with its lowered final tone, and the question without a question word. This latter contour has the sharp rise in tone on the stressed syllable of the word on which the question is based. E.g. 'Èto fakty?' He states that there is more variation of melody in incomplete syntagms. For the first two of these he means incomplete in the syntactic sense and for the third, incomplete in the expressive sense. The first one has a sharp rise in tone on the stressed syllable of the nucleus and a lower tone after that. E.g. 'Stat'ja po estetikè| v papkè.' (178) He disagrees with Bryzgunova here that this is the same melody as in 'Èto fakty?' He and Kuznetsova both consider this to be a special type only occuring in two-part phrases. The second type is characterized by the absence of any sharp interval. E.g. 'Tak kak èto fakt, ty otvet'.' (181)

Another example of Type two with a higher tone occurs when the last stressed syllable of the designated word is not the last in the syntagm, i.e. other stressed words follow it. E.g. (181) 'Stat'ja po èstetike | v papke.' He notes (181) that according to Bryzgunova, this melody is analagous to the incomplete question with 'a' which he considers a separate entity. The third type, characterizing unfinished syntagms in terms of meaning, is similar to the statement melody. E.g. 'Èto Petrov | avtor stat'i po fizike.' (182) The melody of each syntagm in this type is essentially independent.

His questioning melody has three types which are previously described under other headings. The question with no special question word is similar to type One of incomplete syntagms. The incomplete sentence with 'a' is similar to type Two of incomplete syntagms. And questions with special question words have a gradually higher tone on the stressed syllable of the nucleus, similar to narrative sentences.

Bulanin concludes with two more unique contours, the explanatory, in which the explanatory elements are said with a lower tone and faster tempo than normal, and the enumeration melody, in which the uniform members are each pronounced with the same intonation. To his mind this does not exhaust the possible contour types and he mentions briefly examples such as the comparative, introductory, oppositive, etc.

Bovanus (1955) also divides Russian intonation contours grammatically based on the shape of the contour. Type I includes all

grammatical categories that end on a falling tone. Boyanus says this includes assertions, commands, wh-word questions and exclamations. Type II includes yes-no questions which differ from assertions only by having a high rising or high level pitch on the stressed syllable. His Type III category contains questions and statements with some implication in them, that is, they express perplexity, doubt or surprise. These contours end with a rising tone. Type IV is requests generally spoken with rise-fall tone on the syllable of the request word. The length of the glide up is directly proportionate to the emphasis of the request. Boyanus does not seem to regard as illogical his inclusion of emotion as a Type by itself in the midst of purely grammatical divisions.

Bratus' (1972) strongly emphasizes intonation's function of expressing speaker emotion and situational attitude as being paramount over the "lexico-grammatical" meaning of the words and is the primary means of "increasing and enriching the expressiveness of oral speech."(3) As a reflection of this, he has a slightly different method for organizing Russian intonation. His two major categories are Unemphatic Speech (including affirmative and interrogative melody) and Emphatic Speech (including commands and requests). The affirmative melody falls gradually with a direct descent in pitch at the end of the sentence. E.g. 'Master sdelal ėto vchera || '(16) The interrogative melody of general yes-no questions has a high rise on the nucleus. E.g. 'Ėto mesto zanjato?' (17) Wh-word questions have a

falling tune with secondary stress on the interrogative word. E.g. Chto vy budete delat'? (20) According to Bratus', a non-final syntagm ending in a rise is more closely linked semantically with the preceding clause than one ending in a fall. In Emphatic Speech the speaker's attitude and emotions to a situation are expressed. Contours of this type include ones with a contrast emphasis or logical stress. Commands and requests under this category are divided into four types of descending degree of commanding connotation. For example, in a categorical command there is a prolonged high rise on the command word. E.g. 'Vstat'!' (22) A less categorical command has a high falling tune and a lengthened stressed vowel. E.g. 'Sadites'! (22) A mere request has a rise-fall tune on the stressed lengthened vowel. E.g. 'Perevedite!' (22)

Neither Boyanus nor Bratus' seem to attach importance to a strict demarcation of difference in grammatical and attitudinal meaning in their contour system. Both mix attitudinal and grammatical categories together arbitrarily. They relegate certain grammatical categories to fixed headings, eg. commands and requests to Emphatic speech and interrogative sentences to Unemphatic speech. Bratus' is therefore assuming that there are no unemphatic (neutral?) commands and no emphatic (non-neutral?) interrogative sentences. Another interesting conclusion by Bratus is his assertion (25) that there is no fall-rise tune in Russian. Priestly (1972: 249) notes that this is exactly Bryzgunova's IK-4 with a range of use from incomplete interrogative clauses to listing statements. Boyanus, for his part,

limits the fall-rise tune to use in emphatic warnings only.

The above studies of Russian intonation illustrate the wide ranging opinions that exist to explain how intonation operates within the language. This includes how it should be classified, what it signifies to the hearer and why and what the components of the mechanism that produces intonational meaning actually are. Theories range from Bryzgunova's narrow focus on the classification of intonation types and its effects in discourse, to handbooks which try only to clarify the mechanisms that convey intonation, to attempts by scholars such as Torsuyeva and Zinder to assign it a concrete value or importance within the entire Russian language framework.

Needless to say, some approaches work better than others. Bryzgunova's system, for example, has survived for over twenty years, doubtless because it is based on a sound, well thought out approach to the relationship between contour shape and grammatical category. Her system is both commonsensical and manageable for the Russian language. This approach is in contrast to a system such as Boyanus' whose main interest is in the easiest method of classifying intonation types which does not necessarily result in a coherent system of intonational meaning. Nevertheless, all these approaches, whether they emphasize the emotional or grammatical definition of intonation, provide a good selection of hypotheses and variables on the basis of which further experimental work can proceed.

Notes

[1] Torsuyeva does not define the term 'implication.' Miller (1967)

defines implications as statements which "imply that something more than is actually said should be understood by the listener" or, as interrogatives they require the listener to "supply a confirmation of the information given by the speaker". (155)

C. Literature comparing Russian and English Intonation

The most comprehensive comparison of Russian and English intonation to date is Richard Leed's '*A Contrastive Analysis of Russian and English Intonation Contours*' (1965). He concentrates on teaching correct Russian intonation to English speakers of Russian and identifying misunderstandings that can arise if incorrect intonation is used. Leed specifies two areas of possible confusion; the first is semantic confusion, ie. between a question and statement, the second contains confusions such as between neutral statements and emotionally coloured statements. This is a clear division between grammatical and emotional intonation. He then proceeds to divide Russian and English contours into four groups based on phonetic shape, semantic meaning and range of distribution in each language with a concentration on common Russian contours. Leed adapts Trager and Smith's (1951) notation so that there are four phonemic pitch levels; 1 is the lowest relative pitch of the speaker and 4 the highest. The three terminal junctures include, # as a fall in pitch, // as a rise in pitch and / as a sustained pitch. An apostrophe is used to indicate stress.

Group 1 includes contours that are phonetically similar in Russian and English but are different in distribution and meaning, including a) contours ending in a fall from primary stress b) contours ending level with a fall from primary stress and c) contours ending level with primary stress. Leed begins Group 1 with contour 31'1# which he

says is used for neutral statements in Russian, often with a pre-tonic rise. E.g. 'Pora vozvrashchat'sja.' In English, contours with a low level on a primary stressed syllable are not neutral except for tags. They can indicate emphasis as in 'What a man!' or show fatigue, disgust, condescension or annoyance. Thus English speakers learning Russian must learn both to suppress any emotional reaction when hearing this contour and learn to use an intuitively emotionally coloured contour in non-emotional situations. 2'31# Leed says engenders the opposite situation. It is a neutral English contour in questions and statements, e.g. 'I'm going home.' and 'Where are you going?', while in Russian it is used in emotional contexts such as imperatives, salutations or with specific emotions such as conviction or persuasion. Leed also distinguishes a contour 3'21# from the earlier 3'11#. The former is again neutral and colourless in Russian although it carries possible extra implication of conviction or emphasis as opposed to 3'11#. In English 3'21# has a strong emphatic connotation as in 'What do you mean?' Leed notes that adding more length to the vowels will make 3'21# even more harsh and unpleasant in English but not in Russian.

Group 1b's '32 is a frequent English contour, but not a frequent Russian one. The grammatical meaning in both languages is the same, one of incompletion, but again in English it is entirely neutral, whereas in Russian it has strong emotional overtones. An English example is, 'If it rains, (we'll go home)'. Leed claims that in Russian this would have connotations of sadness, dolefulness, etc. He notes

(70) that Bryzgunova does not mention this contour at all as a type. He then advises learners of Russian to simply concentrate on eliminating this contour entirely from their Russian.

Group 1c may end on any pitch level as long as the pitch is identical to the one on the primary stress before it. For instance, '11/ occurs in Russian neutral narrative or lecture style, e.g. 'Pora vozvrashchát'sja.' Leed finds that Americans will express annoyance on hearing this contour because in English this low pitch expresses lack of interest plus annoyance as in 'I don't care.' '22/ expresses the grammatical meaning of non-finality in Russian. In the example, 'Pora vozvrashchát'sja', there is also an expression of 'mild regret'. (71) In English, however, this contour conveys 'ruggedness' according to Pike and a 'strong, negative implication' according to Leed such as annoyed resignation, as in, 'Tell me about your friend', or preemptory fatigue, 'She'll explain it to you.' Leed adds that English speakers tend to persist in a rising level at the end of these contours instead of a more clipped level tone, thereby contributing to a non-Russian accent. He doesn't say how or if this accent is emotionally charged.

Group 2 consists of phonetically and roughly semantically similar contours in Russian and English in which there is a rise from mid-level to high level. Contour '23/ of this group signals non-completion grammatically in both Russian and English in a fairly colourless manner, such as in listing intonation. In Russian, Leed says this contour is used with questions beginning with 'a', whereas for Bryzgunova this grammatical category is almost the exclusive domain

of IK-4 which contains a fall on the accented syllable. One instance of discrepancy between the two languages is in polite direct address in which English typically uses this '23/ e.g. 'Mister Peters, please have a seat', whereas Russian will use a falling 23'11# e.g. 'Tovarishch Ivanov', which, as already mentioned, would sound abrupt to an English speaker. Presumably this low fall would sound even more abrupt when used by a Russian speaking English in such a polite speech situation.

Group 3 consists of a Russian contour which does not exist in English. First there is a rise to a main stress then an even higher rise to a sharp fall. Leed identifies this as the usual yes-no question contour in Russian, also used in medial position in statements, e.g. 'Ėto fakty?' and 'Tak kak ėto fakty, (ty otvet').' This description corresponds to Bryzgunova's IK-3. The contour 23'-41# Leed describes as the bane of learners of Russian because of the high rise-fall. In English such a high pitch contrast is used only rarely in heavily emotional situations such as excitement, strong contrast, surprise, gushiness or strong doubt. E.g. 'Help!' and 'That's Peter, not Joe!' (73) Leed attributes Americans' awkwardness in using this contour to the fact that Russian has a greater pitch range than English in normal conversation, especially as regards male speech patterns.

Group 4's '32// is an exclusively English contour containing a short fall from the accented syllable to a lower rising pitch. E.g. 'If it rains, we'll go home.' Leed only discusses it enough to say that this neutral English medial contour must be eliminated from a student's Russian

speech completely.

A more user-oriented approach for the comparison and contrast of Russian and English intonation contours can be found in the aforementioned handbooks of Bratus and Boyanus and in the Russian for Everybody textbook (1984). The latter textbook discusses Bryzgunova's IK system as it applies to common statements and questions. It also explains why some contours could cause confusion not only for an English speaker but for a Russian speaker, thus emphasizing reasons a Russian learner should attempt to produce the proper Russian intonation patterns.

For instance, in Russian for Everybody (RE) a normal friendly assertion in English with no extra connotation contains a rise above normal pitch level on the strongest syllable followed by a drop to low level for the rest of the sentence. For example, 'John's going home'. (17) A Russian non-emotional assertion contains a sharp fall in pitch within the accented syllable of the important word, while the preceding syllables are at a mid-level pitch. E.g. 'Éto dom'. (17) Bratus and Boyanus both describe a typical Russian declarative sentence somewhat differently as a 'generally descending scale of slightly rising pitches' (in Boyanus 1955: 87). In their description there is also a rise before a drop at the end of the sentence, e.g. 'Vanja ljubit igrat' v karty'. The RE authors say that the English rise before the drop in tone makes the sentence sound non-neutral to a Russian, as having some extra implication. On the other hand, the abrupt fall in tone in the Russian sentence will imply gruffness or

indifference to a North American listener.

Wh-questions in both English and Russian seem to be pronounced with a falling contour. The only difference occurs in the amount of stress put on the wh-word. According to the RE authors, in Russian the emphasized word is pronounced with "increased energy and tension and may be somewhat higher in tone.' (26) Yokoyama (1986) says this is not the case in the English equivalent where there is much less freedom to put stress on wh-words during the process of shifting them out of normal word order and moving them into a position closer to the deictic or person words at the beginning of the sentence. She hypothesizes that the unpleasant connotations that English speakers receive when addressed by Russian speakers using Russian intonation patterns is a result of the implication that the deaccented propositional part of the question is a shared concern of both speaker and hearer. She concludes, "It seems entirely possible then, that an impositional interlocuter relationship has a different markedness status in different social and cultural areas, such that what is acceptable in one linguistic culture is presumptuous or even rude in another." (265). This echoes the assertion in RE that "what is neutral in English is non-netural in Russian and vice versa...It is precisely in matters of intonation that inter-cultural misunderstandings can easily occur." (17)

Yes-No questions provide a particularly graphic example of the difference in Russian and English intonation patterns, especially as illustrated by English speakers' attempts to master the Russian

intonation contour. As mentioned previously, production problems include an abrupt rise plus an immediate return to a pitch lower than the pre-nuclear level. This is in great contrast to an English yes-no question in which, according to Russian for Everybody, the voice rises on the last stressed word and remains at that level until the end of the sentence. This level and range of pitch causes the English speaker trouble because English tends to use a narrow pitch range except in "highly emotional or gushy speech". (31) This high rise contour therefore has inherently emotional overtones associated with it for English speakers. Russian for Everybody makes the observation also that "our own intonation system tends to make us react to any strong intonation as a falling contour." (32) This may result in a student making sharp falling contours while intending to make sharp rising ones.

Joseph Lake (1982) discusses a semantic problem related to this unmarked yes-no intonation contour: which word in a Russian sentence must the sharp rise occur in order to reflect a certain meaning? In English this situation does not arise because the less abrupt rise signalling the unmarked question is always manifested over the entire post-nuclear part of the sentence e.g. 'Was it a concert you were at?' (113) and not just on the nuclear syllable as in Russian e.g. 'Ty byl na kontserte?' (113) Furthermore, in English the nucleus is always on the last stressable word in the sentence. This means that in Russian general yes-no questions where the verb is the nucleus, to an English speaker the intonational centre is in the wrong place. Thus

when speaking Russian he will tend to place the centre wrongly and also to misunderstand the question. When the rise in pitch occurs on the verb in English, the verb is stressed semantically as well, whereas in Russian there is no accompanying semantic emphasis on the verb. For example, 'Vy govorili s direktorom?' = Have you spoken to the director (or not)? and 'Have you spoken to the director?' = Have you *spoken* to the director (or *written* to him)? (115)

Russian for Everybody makes the final observation (43) that Bryzgunova's IK-4 comes the closest to the English contour for general yes-no questions. If English speakers use this contour for Russian regular wh-questions, emotional overtones of surprise, uncertainty, disbelief, etc. will be unintentionally added.

The comparative analyses in Leed and the Russian for Everybody textbook seem to be the first systematic attempts to examine suitability of emotional meaning in given speech situations across Russian and English culture. And although none of their observations are substantiated by controlled experimentation, these observations and those of the other scholars mentioned serve as valuable starting points from which the present study can begin. An attempt will be made to specifically compare Russian and English contours in order to determine what type of emotional impact a contour of one language would have on a listener from another language. In this way some of the claims put forward concerning the semantic and emotional similarities and differences between Russian and English intonational meaning may either be refuted or corroborated by empirical facts.

The following pages provide a direct, tabular comparison of Russian and English intonational contours adapted from the scholars in the above review. They are grouped syntactically as Declarative Statement, Wh-Question, Yes-No Question and Exclamation.

Table 1
Comparison of Russian and English Contours

Neutral Declarative Statement

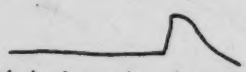
Russian for Everybody

Russian

Eto Mama.

--more or less sharp fall in pitch on accented syllable of most important word of sentence --fall in pitch within one syllable (17)

English



John's going home.

--rise above normal pitch level on strongest syllable followed by drop to low pitch. (17)

Boyanus

Russian

Vanja ljubit igrat' v karty.

--descending scale of slightly rising pitches. (87)

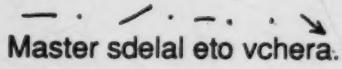
English

John likes to play cards.

--gradual and continuous descending scale of level pitches

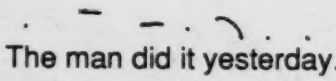
Bratus

Russian



--descent contracted into one syllable --fall sounds louder against secondary stress rise and neutral zero level of the other syllables (16)

English



--gradual and continuous descent (16)

Leed

Russian

2 3 1 1#
Pora vozvrashchat'sja.

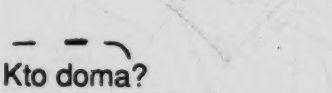
English

2 3 1#
I'm going hóme. (67)

Wh-Question

Russian for Everybody

Russian



--is somewhat like statement intonation but emphasized word is pronounced with increased energy and tension and possible higher tone (25)

English

--both English and Russian questions which contain an interrogative (question) word are generally pronouced with falling intonation. (25)

Boyanus

--in Russian and English are pronounced with a falling tune (18)

Russian

Kak eto nazyvaetsja? (18)

Bratus

Russian

Skol'ko raz? (98)

Leed

Russian

2 3 2 1#
Kuda vy xotite idti? (69)

--relatively neutral --in English this pattern implies "Well make up your mind - we haven't got all day." (68)

English

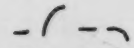
2 3 1#
Where are you going? (67)

--contour rarely used in Russian --non-neutral Russian meaning

Yes-No Questions

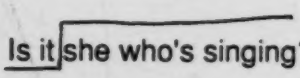
Russian for Everybody

Russian



--syllables preceding accented syllable at speaker's mid-level --pitch rises very abruptly at beginning of accented syllable to peak within same syllable --remaining syllables all at low level (31)

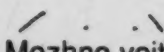
English



--voice rises at last emphasized word and stays high till end of sentence (31)

Boyanus

Russian



--stressed syllable pronounced with high rising pitch -- unstressed syllables following the stress are very low (99)

English

--in Russian this contour is used in Russian yes-no questions which have implications of perplexity, doubt, surprise (104)

e.g. Vy byli v Moskve?

Bratus

Russian

Ne xotite li pojti s nami v teatr?

--high rise and stress on most important word (17)

English

Would you like to come to the theatre with us?

--unstressed syllables commonly pronounced with a rise

Leed

Russian

2 3-4 1#
Èto fákty? (73)

--most frequent Russian yes-no question contour

English

2 2 3 //
Are you going home? (63)

Exclamations

Boyanus

Russian

Kak uzhasno!

--falling contour from a greater than normal height (96)

Bratus

--pronounced in Russian and English with emphatic falling tune (22)
e.g.

Eto prekrasno!

Leed

Russian

2 4 1#
Avtobus idet. (74)

III. The Experiment

A. Introduction

Judging by the studies in the previous chapter, it is obvious that there are important differences in the nature of the intonational contours employed by English and Russian. The empirical classification of these differences seems to be clarified by measuring differences in speaker attitude and emotional reaction to the various contours. It is the intention of the present study to employ this method in an experimental study which compares the uses and functions of intonation in Russian and English.

Intonation will be compared from the point of view of Russian native speakers in their emotional judgment of both Russian contours and non-Russian; i.e. English contours. Thus, the subjects will be comparing spoken native Russian to spoken Russian with an English 'accent'. It is the form and function of this intonational 'accent' that this study wishes to determine. The main task is to discover in which contours it illustrates itself most clearly and why, by virtue of the reaction of the listener. Secondarily, the experimental results will indicate which emotional parameters are the most sensitive to the intonational differences between the two languages.

B. Subjects

Nine subjects participated in the experiment. All were native adult Russian speakers who use Russian as their primary language in the home environment. This was the closest approximation to mono-lingual Russian speakers that could be made in a predominantly English-speaking Canadian environment. All subjects have been in Canada for at least five years and were originally from the central Russian region of the Soviet Union. They spoke varying degrees of English, ranging from quite good to very good. All were between eighteen and sixty-five years of age. There were five female and four male subjects.

C. Materials

The materials used in the experiment consisted of a questionnaire plus a tape recording (two cassettes). Subjects were required to listen to the tapes and mark down their answers on the questionnaire.

The tapes contained a total of 320 sentences in Russian, a compilation of 32 base sentences each copied ten times and randomized. These base sentences consisted of two identical sets of sixteen Russian sentences which were divided into four grammatical/ syntactic categories containing four sentences each. The four grammatical categories were declarative sentence, wh-question,

yes-no question and exclamation. One set of the sixteen sentences was then recorded with Russian intonation appropriate to the grammatical category, and the second set with the corresponding English intonation required by the grammatical category.

English intonation was imposed on the Russian sentences in the following manner. First, sixteen English sentences in the four grammatical categories were recorded on tape by the author, a native speaker of western-Canadian English. These were spoken in narrative style in as natural and neutral way as possible. Second, the control speaker, a native Russian female in her twenties, recorded separately her versions of the same sentences in Russian with natural Russian intonation. These Russian sentences were duplicates of their English counterparts as closely as possible both in meaning, i.e. lexical content, and in stress pattern in order to eliminate any reason for differences between the English and Russian intonation contours except those imposed arbitrarily by the experiment. The next step was for the control speaker to record these same sixteen Russian sentences with English intonation contours, using the author's earlier taped versions as the standard to imitate. In this way, thirty-two control sentences were produced. The four groups of sixteen lexically different sentences with the English translations used as the basis for imitation of intonation, together with the transliterations, are listed below. A graphic representation of the 32 contours uttered by the control subject is contained in Appenidx C. The contours are

marked in Bryzgunova's style.

Statements

1. Moj djadja zabyl svoj doklad.
   My uncle forgot his report .

2. On el sup kazhdyj den'.
   He ate soup every day .

3. Moj Papa sporil s kazhdym professorom.
   My father argued with every professor.

4. My prishli v dva chasa.
   We arrived at two o'clock .

Wh-questions

1. Gde moj sharf?
   Where's my scarf ?

2. Kto vzjal uchebnik?
   Who took the textbook ?

3. Chto vy xotite pit'?

/ ˘ ˘ / ˘ /
What do you want to drink ?

/ ˘ ˘ / ˘ / ˘
4. Kak uchenik chitaet?
/ ˘ ˘ / ˘ / ˘
How is the student reading ?

Yes-No Questions

˘ ˘ / ˘ / ˘ /
1. On ushel v shest' chasov?
˘ ˘ / ˘ / ˘ /
Did he go at six o'clock ?

˘ ˘ / ˘ / ˘
2. On kupil bilety?
˘ ˘ / ˘ / ˘
Did he buy the tickets ?

˘ ˘ / ˘ ˘ / ˘
3. Vy idete vo vtornik?
˘ ˘ / ˘ ˘ / ˘
Are you going on Tuesday ?

˘ / ˘ ˘ ˘ /
4. U Mashy est' chasy?
˘ / ˘ ˘ ˘ /
Does Masha have a watch ?

Exclamations

1. Vot moj dom!
   That's my house !

2. Eto mnogo deneg!
   That's a lot of money !

3. Chto za vkusnyj tort!
   What a tasty cake !

4. On glupyj!
   He's stupid !

Each sentence was matched against ten emotional or attitudinal states. The female adjectival endings reflect the female control voice on the tape. These were Angry/Serdita, Arrogant/Vysokomerna, Bored/Skuchna[1], Critical/Kritikuet, Indecisive/Nereshitel'na, Pleasant/Prijatna, Polite/Vezhliva, Relaxed/Spokojna, Sad/Grustna, Surprised/Udivlena. These ten states were roughly divided between temporary or purely emotional states (Surprised, Angry, Sad, Bored, Relaxed) and more permanent states describing personality attributes (Polite, Critical, Arrogant, Indecisive, Pleasant). These ten adjectives were chosen on the basis of experiments by Uldall, Crystal, Van Bezooyen and others. It was felt these ten would best reflect possible Russian reactions to English intonation. They were also

meant to be used if the experiment were ever repeated to test English reactions to Russian intonation. The number was set at ten in order to allow for as refined an emotional definition as possible but at the same time to set a reasonable time limit for the length of the experiment.

D. Procedure

Each question on the questionnaire therefore consisted of an emotion/attitude followed by a seven-point scale (1-7) and the accompanying sentence on the tape recorder, chosen from the thirty-two (32) randomized stimuli. After hearing a sentence, subjects were required to rate the degree of the indicated emotion they felt was being manifested by the speaker. 1 was the equivalent of 'emotion not evident' and 7 equalled 'emotion very evident'. The pause in between utterances was seven seconds. Only one emotion per utterance was tested at a time to prevent confusion between disparate emotions in the mind of the subjects. There were 320 stimuli or questions in total. Each of the 32 sentence stimuli was tested separately for each of the ten emotion/attitude parameters (32 x 10 = 320). The entire experiment lasted one hour and fifteen minutes but because of the length and repetitive nature of the questions, subjects were encouraged to take as many breaks as they needed.

The questionnaire and instructions (transliterated) are reproduced

in Appendix A.

E. Hypotheses

The hypotheses to be tested by the experiment are based on evidence and theories put forward by authors in the literature review and are grouped according to the four grammatical categories used in the experiment.

Declarative Sentences

It is expected that the minor differences between the Russian and the English declarative sentence melody will not cause the Russian listeners to react sharply to the English contour. Both contours are described by scholars as descending in pitch, the Russian one in a more definitive and decisive manner than the English. The author predicts that any reaction should be to the overall smoother, less abrupt shape of the English contour possibly resulting in higher scores for Relaxed or Bored. Also, the less definitive, more gradual finish to the English contour as opposed to the Russian one may sound more Indecisive to the Russian ear and would consequently be scored lower on Arrogance and Anger.

Wh-Questions

Wh-questions are the least discussed category in the literature and

there are almost no direct comparisons between the Russian and English contour in the teaching literature reviewed here. Leed is the only scholar to make mention of possible conflict between the English and Russian wh-contour when he observes (67) that the English /2'31#/ is rarely used in Russian. It is a case of "a Russian contour with added implication corresponding to a neutral English contour." (66) In the few instances it is used in Russian, it seems to occur in examples of contrastive meaning, imperatives, or situations where the speaker is trying to convince or persuade. Leed wonders whether or not English must therefore sound "overly insistent to Russian ears," by virtue of the high frequency use of this contour for English wh-questions. The Russian emotional reaction in the experiment to this English intonation pattern might therefore be expected to be indicated by a lower score for one or all of Polite, Pleasant and Relaxed.

Yes-No Questions

This category stands out as a major example of how Russian and English differ intonationally. The emphasis in pedagogical literature is usually on how the English speaker must cope with producing the required sharp rise, both in a production sense and in a semantic sense. To the English speaker this rise necessitates putting emotional value into an ostensibly neutral question. The absence of this rise in the English equivalent must be immediately noticeable to

a Russian speaker. It is possible that the relative flatness or smoothness of the contour will cause a corresponding lack of emotional involvement in the perception of the listener. Of the ten emotions, Bored is the most suitable emotion to capture this effect. Another possibility is that the Russian subjects will hear a lack of intent or purpose on the speaker's part, because of the lack of the sharp rise in tone which signals this in Russian Yes-No questions. This could also be compounded by the absence of a fall at the end of the contour, suggesting a lack of finality in thought which could be translated as Indecision.

Exclamations

Both English and Russian exclamation contours are produced with some kind of definite falling tone after a rise from "greater than normal height." (Boyanus: 96) It is to be seen whether this fall is perceived as identical in length and height of starting point since there seems to be no comparison between them to any specific degree in the literature. Any such differences would presumably be indicated in the amount of Surprise each is assigned. The other emotional reactions will help indicate whether the increase or decrease in surprise is considered as a positive or negative phenomenon by the Russian speaker.

It is generally assumed that English speakers tend to find English

spoken with a Russian accent as generally abrupt or gruff and the speakers themselves as indifferent or even arrogant. It is posited, therefore, that Russians will find Russian spoken with an English accent to have the equal but opposite negative effect, i.e. with overtones of uncertainty, indecision and hesitation.

Notes

1 'Skuchna' is an ambiguous adjective in Russian. In this case it can mean a 'Bored speaker' or a 'Boring speaker'. The former is a temporary emotional state whereas the latter refers more to a personality trait.

IV. Results and Analysis

A. Introduction

A three-way analysis of variance (ANOVA) was conducted on four factors: Subjects (S), Intonation Type (I), Grammatical Type (T) and individual Propostions which carried a nested Grammatical Type variable (P(T)). F-ratios were also found for the crossed factors of Intonation x Grammatical Type (IT) and for Intonation x Proposition (Grammatical Type) (IP(T)). In each analysis of variance there were thirty-two propositions multiplied by nine subjects or cases for a total of 288 data points. The analysis of variance was repeated ten times for each of the ten emotional or personal states. Cell and marginal means were plotted and graphed in order to illustrate the F-scores and general trends of the results. Additional post-hoc comparisons (Tukey and Scheffé) were conducted on those significant F-ratios concerning interactive effects (IT and IP(T)) in order to determine which means of the group were causing the ratio to be significant.

Each factor will be discussed separately in terms of its significance (or non-significance as the case may be) and how it behaved in reference to the ten emotional or attitudinal states. The categories are reported in order from largest to narrowest in scope. Utterances with Russian intonation will be referred to as 'Russian' statements, wh-questions, etc.; those with English intonation will be

referred to as 'English' statements, etc.

B. Results

Table 2
(ANOVA) Source - Intonation (I)

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	22.781	1	2.11	0.1848
Arrogant	6.4201	1	2.22	0.1749
Bored	0.013889	1	0.01	0.1749
Critical	0.42014	1	1.06	0.3335
Indecisive	21.125	1	15.36	0.0044
Pleasant	20.0556	1	20.85	0.0018
Polite	0.78125	1	0.38	0.5546
Relaxed	17.014	1	2.61	0.1447
Sad	1.2535	1	0.39	0.5521
Surprised	128.00	1	86.69	0.0000

The factor I indicates that the overall intonational difference between Russian and English was surprisingly low. Of the ten emotional or attitudinal states, it figured significantly in only three of them, Surprised, Indecisive and Pleasant. In all cases it is the English intonation contours which are characterized as having significantly more of these qualities. By referring to the means graphed on the following pages, it is evident that the English yes-no questions and exclamations are contributing to the high Pleasant rating. The higher Indecisive and Surprised scores are caused by the yes-no questions and exclamations as well as the wh-questions for Surprised. These preliminary observations will be confirmed

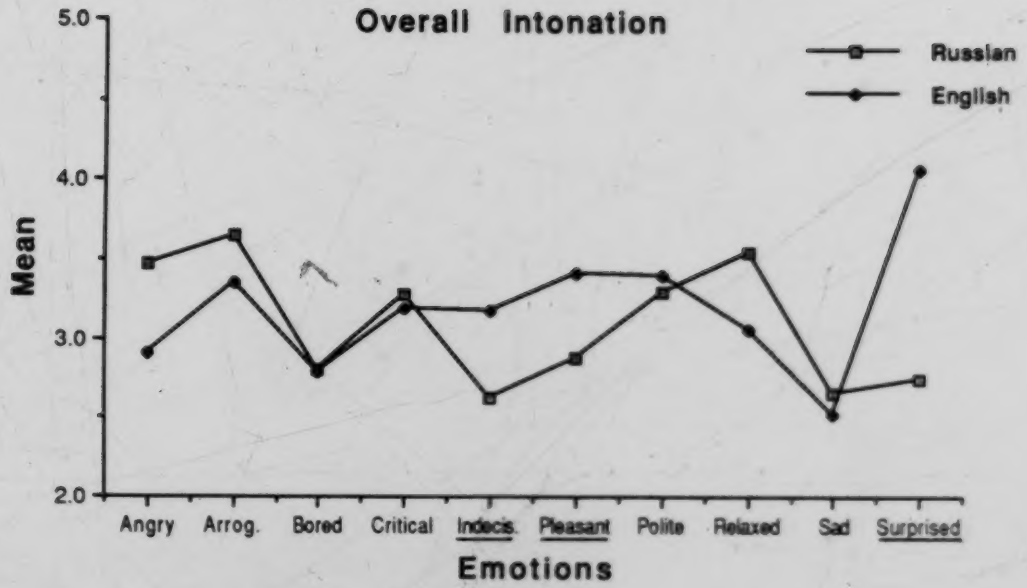

Overall Intonation
Russian
English
5.0
4.0
3.0
2.0
Mean
Angry
Arrog.
Bored
Critical
Indecis.
Pleasant
Polite
Relaxed
Sad
Surprised
Emotions

Figure 1

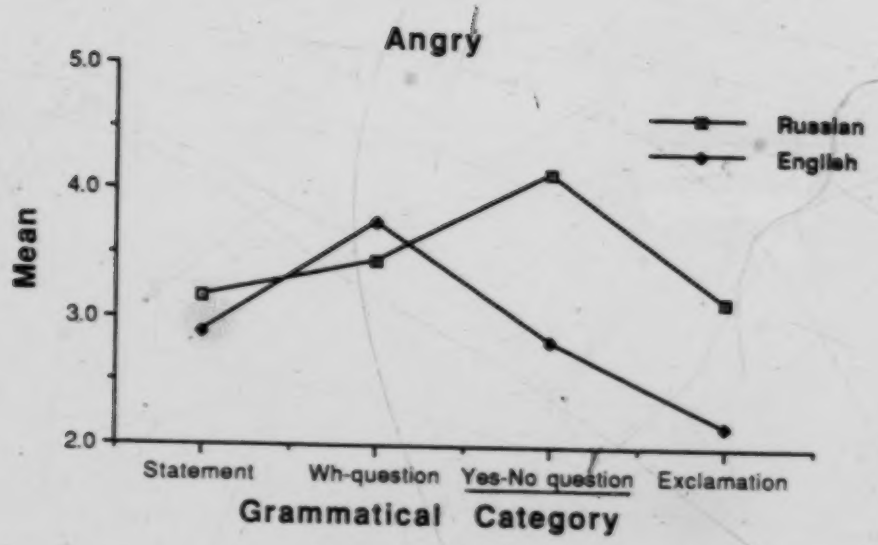


Figure 2

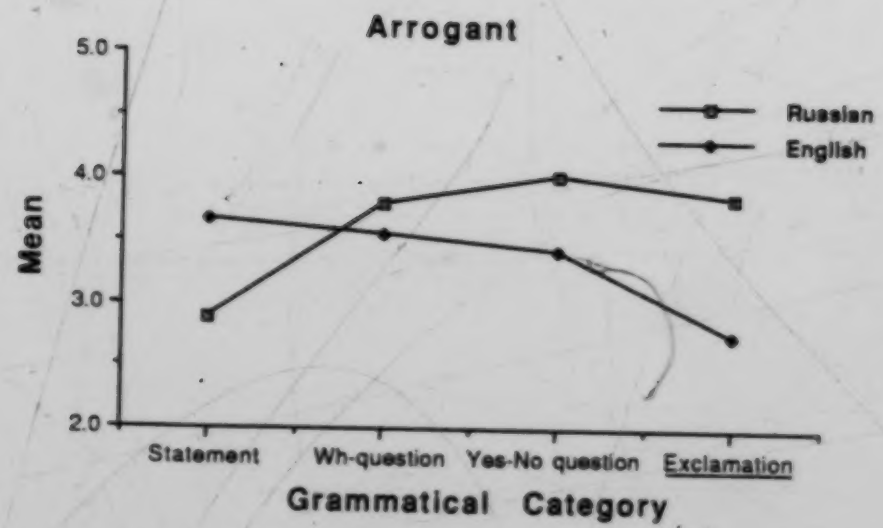


Figure 3

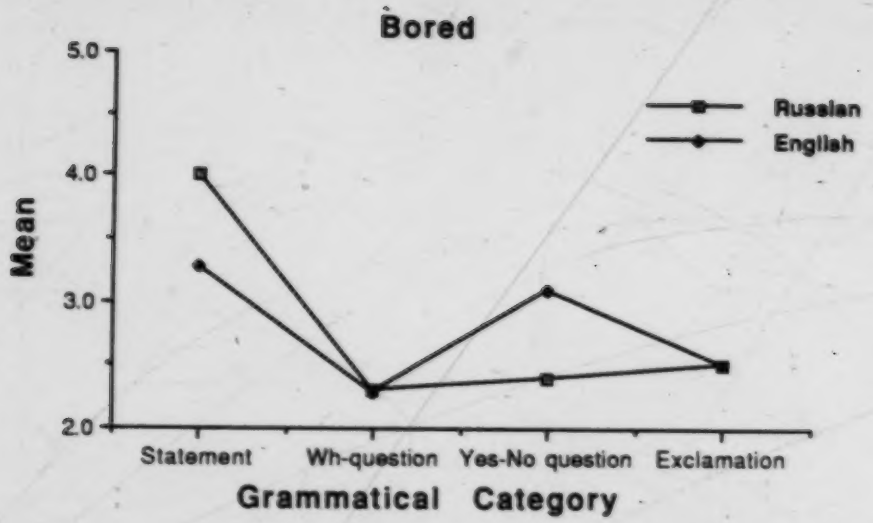


Figure 4

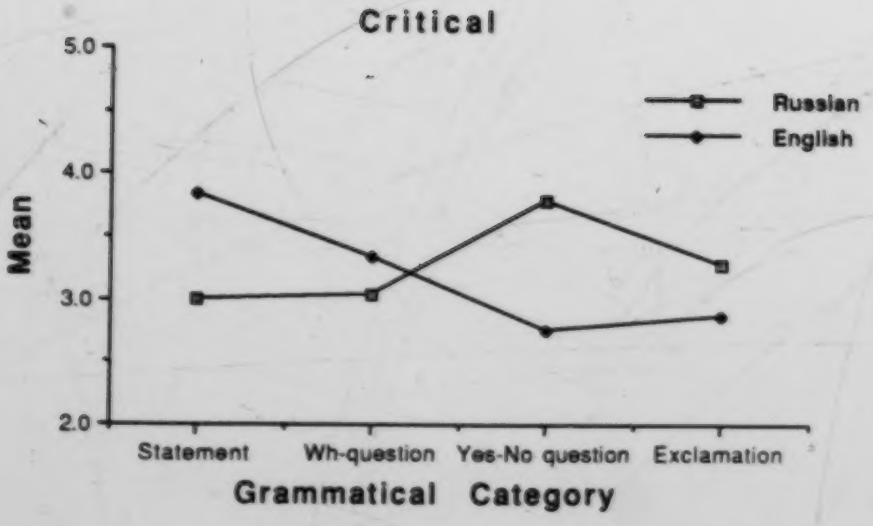


Figure 5

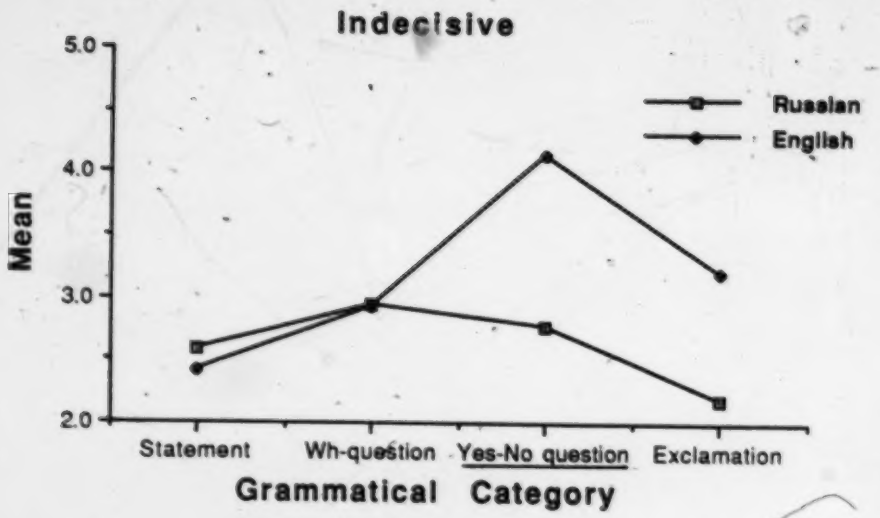


Figure 6

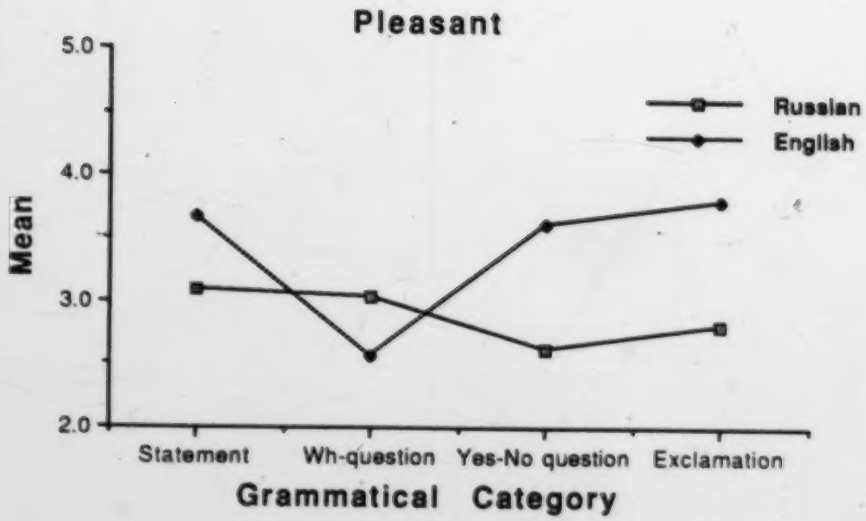
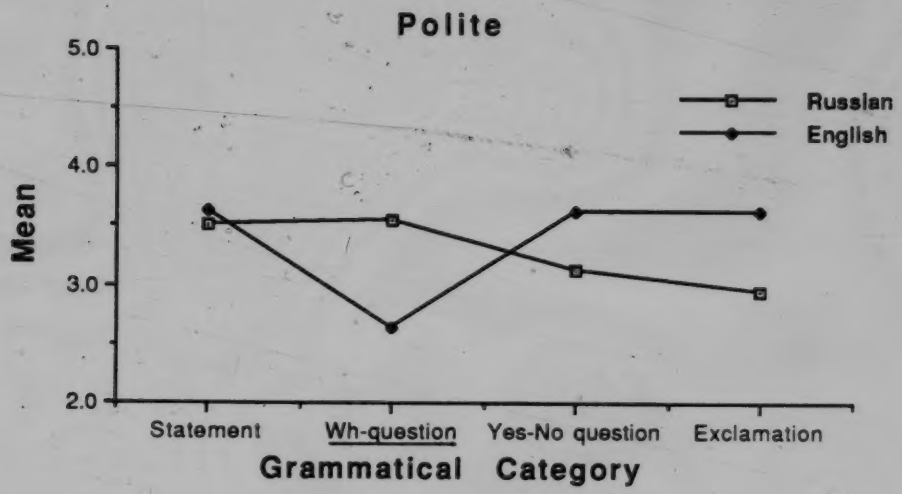


Figure 7



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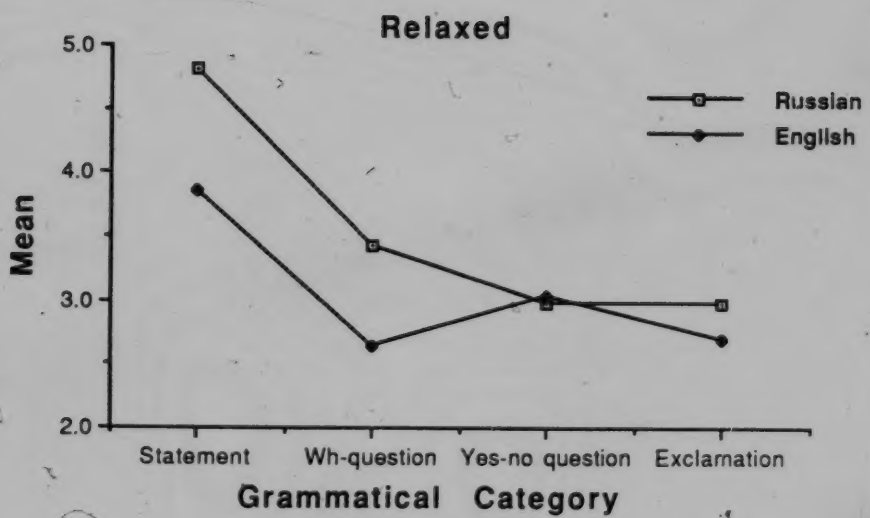

Figure 9

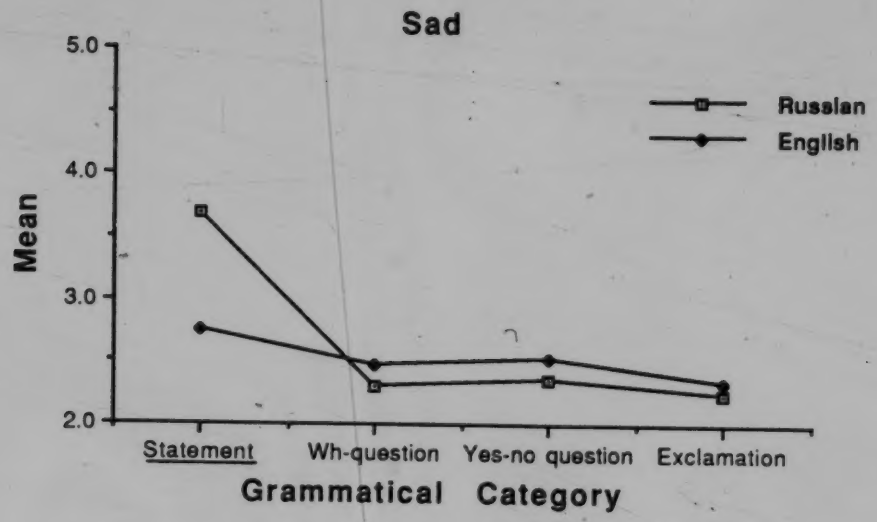

Figure 10

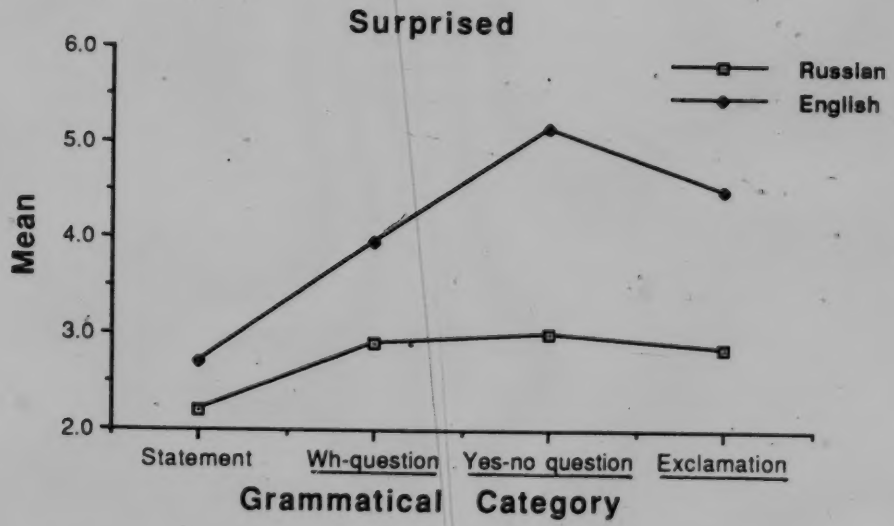

Figure 11

empirically by the results to follow. Categories with statistically significant spreads have been underlined in the figures 1-11 . The most glaring result, however, is the apparent lack of overall intonational difference between the two languages against the emotional backgrounds of Angry, Arrogant, Bored, Critical, Polite, Relaxed and Sad. This outcome is somewhat misleading in that it is not meant to indicate that these latter emotions do not play a significant role in the results. Other factors tested may well show a high significance for these emotions/attitudes. For intonation as a factor, however, they are not consistently and sufficiently significant when considered against all the means (144) that make up the I mean to cause a significant F-ratio. These results do provide indication though, of those emotional or attitudinal states which will predominate in significance in the forthcoming analysis. In other words, if a grammatical factor shows any significant F-ratios, Surprised, Pleasant and Indecisive will be high on the list of contributing emotions.

Table 3
(ANOVA) Source - Grammatical Type (T)

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	40.927	3	6.09	0.0031
Arrogant	12.1771	3	4.22	0.0157
Bored	76.027778	3	19.14	0.0000
Critical	4.62153	3	0.50	0.6828
Indecisive	37.069	3	7.25	0.0013
Pleasant	14.7361	3	1.92	0.1539

Polite	8.37153	3	0.73	0.5416
Relaxed	104.375	3	9.91	0.0002
Sad	39.6215	3	9.54	0.0002
Surprised	103.694	3	16.43	0.0000

The next factor to be tested was Grammatical Type, that is, whether the overall means of Declarative Statement, Wh-questions, Yes-No questions and Exclamations differ significantly from each other against the background of the ten emotional-attitudinal states. It was found that F-ratios for grammatical type (T) were significant for the following emotions: Angry, Arrogant, Bored, Indecisive, Relaxed, Sad, Surprised. All except Arrogant were highly significant.

Statements scored high for Bored, Relaxed and Sad and low for Arrogant, Indecisive and Surprised as compared to the other grammatical types. Wh-questions scored high for Angry, Surprised and low for Bored and Sad. Yes-no questions scored high for Angry, Arrogant, Indecisive and Surprised and comparatively low for Bored, Relaxed and Sad. Finally, Exclamations scored high for Surprised and low for Angry, Bored, Relaxed and Sad.

Some of these scores are immediately interpretable on the basis of the semantic nature of the syntactic categories. For instance, declarative statements are clearly more inherently neutral in emotional or attitudinal overtones than are questions or exclamations. Questions have a built in foundation of some degree of doubt or uncertainty on the part of the speaker and exclamations

naturally result from the speaker being excited or surprised. In any case, the degree of base emotion in these latter categories will start off at a higher level than in a neutral statement. This explains the high incidence of their association with so-called 'high activity' emotions such as Anger and Surprise, and statements' association with 'low activity' emotions such as Boredom and Sadness.

Table 4

(ANOVA) Source - Intonation x Grammatical Type (IT)

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	27.983	3	5.11	0.0071
Arrogant	34.5382	3	6.91	0.0016
Bored	18.069444	3	4.13	0.0170
Critical	35.89931	3	5.62	0.0046
Indecisive	30.736	3	4.15	0.0081
Pleasant	26.0833	3	3.89	0.0213
Polite	27.87153	3	7.68	0.0009
Relaxed	11.375	3	1.80	0.1737
Sad	15.9271	3	3.78	0.0235
Surprised	27.250	3	6.33	0.0026

Significance was tested for crossing the two factors Intonation and Grammatical Type to see whether or not any differences among grammatical type means held across the two different intonation types. A given syntactic category was tested against all other grammatical categories of both languages. The interaction of these two factors captures the central purpose of the experiment outlined in the Introduction. It turns out that this interaction is significant

under all emotional/ attitudinal conditions except for Relaxed. A multiple comparison (Tukey) using the studentized range was performed on the significant groups of means. The minimum level at which a score was considered significant was set at the .05 range. Scheffé's method of multiple comparison was also performed on this variable in line with the variable IP(T) on which only Scheffé's test was used. The results for this second test were virtually identical to results from Tukey's method . For a comparison of significance on the results using these two methods, see the table in Appendix B.

For the purpose of this experiment, the most revealing comparisons are those within a given syntactic category. Comparisons across other syntactic categories will only be noted when the reason for the significance is not immediately clear from the nature of the syntactic or emotional category involved. Russian declarative sentences were scored significantly higher for Sad than all other grammatical categories for both intonation types. They were also significantly more Bored than most of the other categories. They were significantly more Polite only for English wh-questions. English declarative statements only scored significantly higher for Bored, compared to both English and Russian wh-questions and were more Polite than English wh-questions.

Russian wh-questions were significantly more Angry and Arrogant than English Exclamations and more Polite than English wh-questions. English wh-questions were more Angry than English statements and

exclamations and more Surprised than every Russian syntactic category, including Russian exclamations.

Russian yes-no questions were significantly more Angry than English yes-no questions and more Arrogant than English exclamations and Russian statements. English yes-no questions were a very active category scoring significantly higher than Russian yes-no questions for Indecisive and for Surprised. They were also more Polite than English wh-questions.

Lastly, Russian exclamations were significantly more Arrogant than English exclamations. The major result for English exclamations was their significant score for Surprise against all Russian grammatical categories including Russian exclamations. They were also more Polite and Pleasant than English wh-questions and more Pleasant than Russian yes-no questions.

Some of the above results are more interesting and puzzling than others. As mentioned earlier, some behaviour is obvious from the nature of the grammatical or emotional category involved. Those statistics less easily explained will be discussed fully in the next chapter.

The patterns of interaction between Grammatical Type and Intonation can be seen in the graphs in the pages immediately following. On each graph factors contributing to statistically significant differences between Russian and English are underlined.

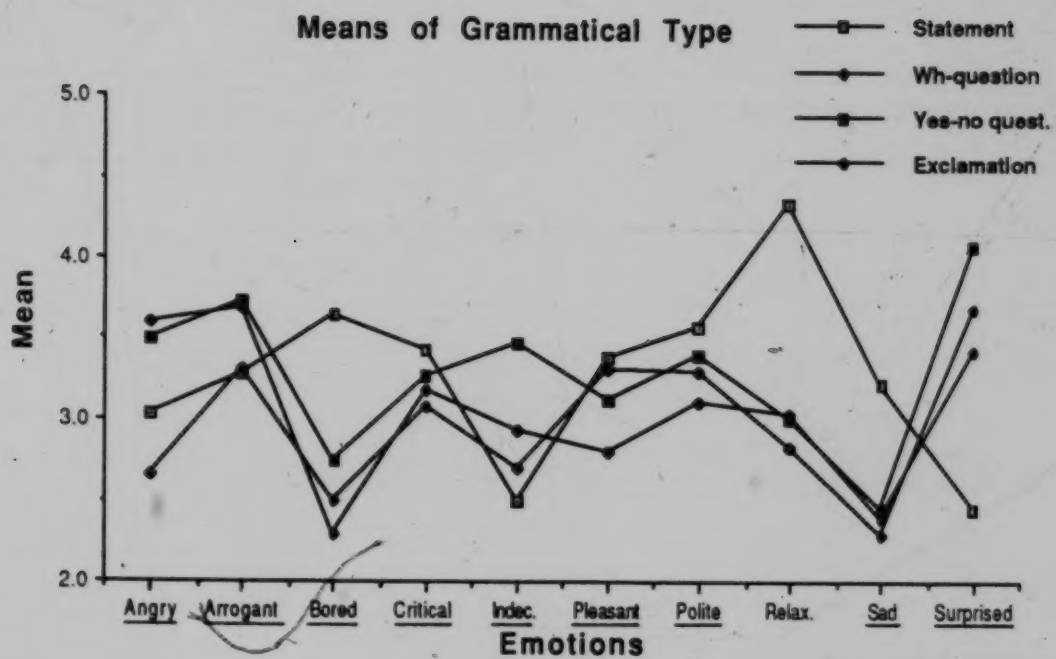
Means of Grammatical Type
Statement
Wh-question
Yes-no quest.
Exclamation
5.0
4.0
3.0
2.0
Mean
Angry
Arrogant
Bored
Critical
Indec.
Pleasant
Polite
Relax.
Sad
Surprised
Emotions

Figure 12

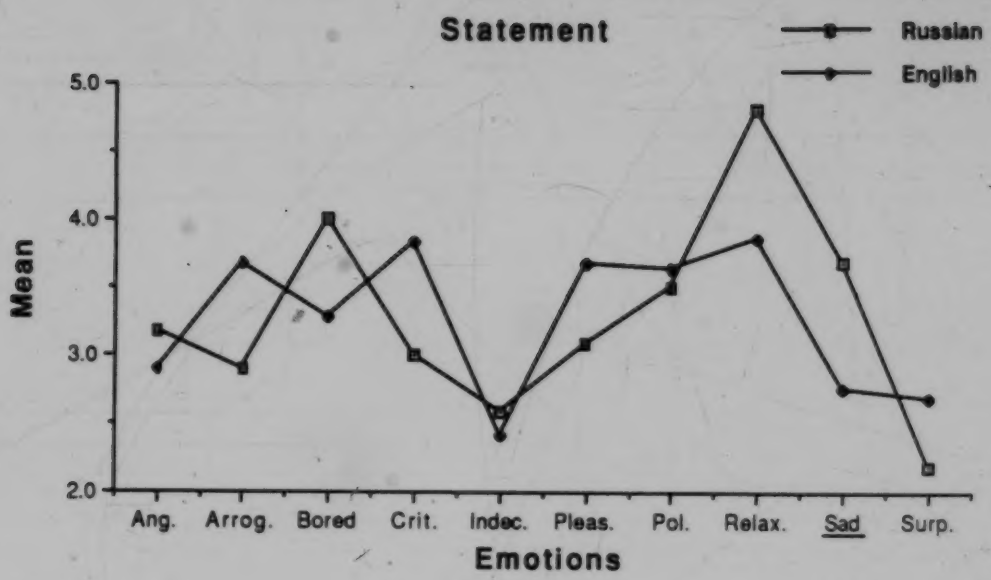

Figure 13

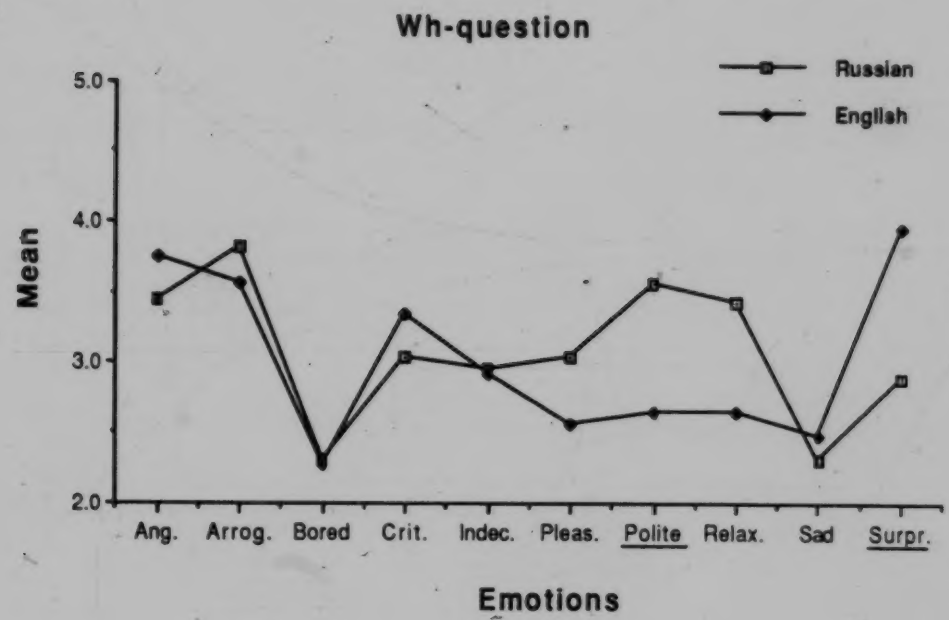

Figure 14

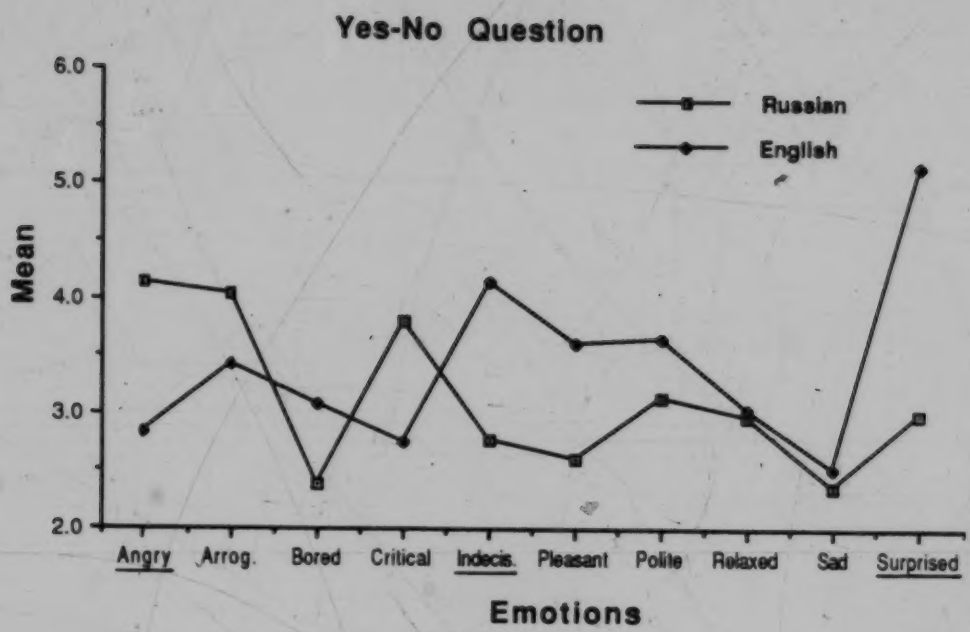

Figure 15

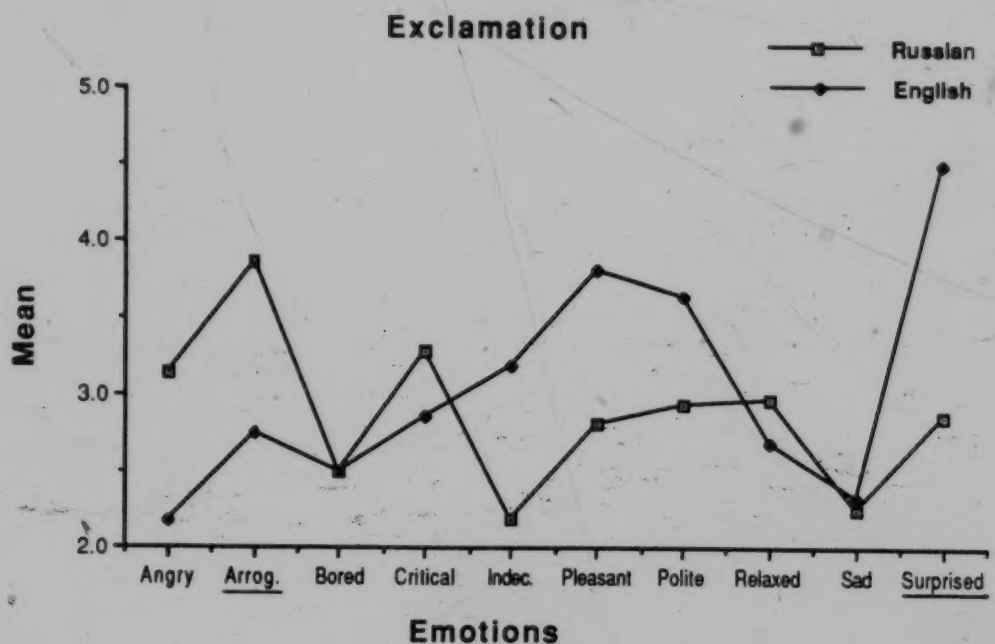

Figure 16

Table 5
(ANOVA) Source - Propositions (Grammatical Type) (P(T))

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	76.958	12	4.45	0.0000
Arrogant	98.8750	12	4.88	0.0000
Bored	64.027778	12	3.99	0.0001
Critical	142.51389	12	5.65	0.0000
Indecisive	31.917	12	2.33	0.0115
Pleasant	118.9167	12	5.59	0.0000
Polite	117.01389	12	5.59	0.0000
Relaxed	89.056	12	3.66	0.0002
Sad	89.3750	12	4.61	0.0000
Surprised	66.917	12	2.96	0.0015

The next factor tested was whether the means of the individual sentences or propositions within and across all grammatical types differed significantly from each other without reference to the Intonation variable. In effect, this factor P(T) and the next, IP(T) test for contribution by lexical content of the utterance to the score. For every emotional/attitudinal condition, this factor turned out to be significant and Tukey's test of multiple comparisons was therefore conducted on all ten F-ratios.

Although the four separate propositions within each grammatical types usually behaved in a uniform and consistent fashion, in some instances certain propositions in certain grammatical categories were prone to exaggerated scores. The most salient of these

deviations will be noted.

Under the category of declarative statement, statement no. 4, 'My prishli v dva chasa ' and no. 3 'Moj Papa sporil s kazhdym professorom.' , seemed to deviate most often from the means of the other statements. This occurred for the emotional/attitudinal classes of Bored and Sad where the score was significantly higher than all other propositions. Statement no. 3 echoed this pattern except for Sad.

The four different exclamations also developed their own pattern. No. 1, 'Vot moj dom!', consistently scored lower for Angry, Critical and Sad as compared to the other propositions. Exclamation no. 4, 'On glupyj!', scored higher for Arrogant, Critical and lower for Pleasant than the other exclamations, as well as compared to all the statements, Yes-no 1 and 2 and Wh- 1. Disregarding the question of language intonation pattern influence for this variable, it seems obvious that for some propositions in these categories lexical content is contributing to higher and lower scores than expected. This seems especially likely for exclamation 4, 'On glupyj!', where the semantic content is more negative in nature than the other category numbers such as no. 3, 'Chto za vkusnyj tort!', which is positive and complimentary in nature in comparison to no. 4. Not surprisingly, therefore, it scored significantly higher than all other propositions for Pleasant and Polite. On the other hand, it was more Sad than all the other exclamations as well as Wh- 1, and Yes-no 1 and 4.

For yes-no questions it was no. 1, 'On ushel v shest' chasov?', that

produced higher scores for Angry and Arrogant than the other proposition types including the other three Yes-No questions. This question, as well as no. 2, 'On kupil bilety?', may have been perceived by the subjects as having a higher degree of persistent interest by the speaker compared to the other general, less personal questions such as 'Kto vzjal uchebnik?' or 'Kak uchenik chitaet?'

Table 6

(ANOVA) Source - Intonation x Proposition (Grammatical Type) (IP(T))

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	41.625	12	1.95	0.0375
Arrogant	18.4306	12	1.17	0.3151
Bored	76.47222	12	4.87	0.0000
Critical	17.29167	12	1.31	0.2254
Indecisive	46.1944	12	2.14	0.0212
Pleasant	45.1944	12	2.65	0.0041
Polite	31.18056	12	1.64	0.0935
Relaxed	30.944	12	1.37	0.1951
Sad	69.8750	12	3.86	0.0001
Surprised	30.528	12	1.76	0.0665

The testing of this interaction indicates if and how any individual propositional differences within a grammatical type are correlated with the intonation contour (English or Russian) it was pronounced with. Each proposition was compared with every other one of the thirty-two propositions under both intonation types. The F-ratio was

significant for four of the ten emotional/attitudinal parameters; Sad, Pleasant, Indecisive and Bored. It was not significant for Surprised, Relaxed, Polite, Critical, Arrogant and Angry.

Only Scheffé's method of multiple mean comparison using F-tables was performed on the significent F-ratios for this interaction because the number of means (32) was too large for the studentized range statistic table. The value of F' required at the .05 level (F=1.85) was 22.2. To avoid ambiguity and repetition, the comparisons will be discussed with reference to the higher number in the mean pairs.

As a more detailed description of the function of factor IT, it was not unexpected to find once more that the most active categories were the statements and exclamations-- in particular, Russian and English statements and English exclamations, as well as English yes-no questions. Again, although the statisitics yielded data for comparisons against all proposition types, the results pertinent to the present study are comparisons within one syntactic type or results that not obviously conditioned by the lexicon or the emotional category. Russian statement no. 1, 'Moj djadja zabyl svoj doklad,' was the most deviant of all the utterances in behaviour. It scored significantly higher for Sad and Bored compared to its English equivalent.

Statements with English intonation also scored high for Bored and Sad compared to other utterances. No. 3 was markedly higher for Sad compared to English statement no. 1, 'Moj djadja zabyl svoj doklad.'

English statement no. 4, 'My prishli v dva chasa.', also scored high for Pleasant compared to English wh-question 1 and was more Bored than English statement no. 2, 'On el sup kazhdyj den'.'

Exclamations with English intonation were the next most deviant category. No. 3 'Chto za vkusnyj tort!' was significantly more Pleasant than most of the other propositions in Russian and English although not more so than its counterpart with Russian intonation.

English exclamation 1, 'Vot moj dom!' was more Pleasant than English wh-question 1, 'Gde moj sharf?'

For exclamations with Russian intonation, only no. 3 deviated significantly under the emotion/attitude Pleasant compared to English wh-question 1.

Yes-no questions with English intonation were perceived as more Indecisive than other utterances, especially no. 4, 'U Mashej est' chasy?' which was significantly more Indecisive than Russian Yes-no no. 1, 'On ushel v shest' chasov?'

Yes-no question 1, 'On ushel v shest' chasov?', was perceived as more Pleasant than English wh-question 1.

Finally, the exclamation, 'Vot moj dom!' with Russian intonation was also considered more Pleasant than English wh-question 1.

It should be made clear that certain utterances are consistently cropping up as the other member of the significant pair in this analysis. For example, English wh-question 1, 'Gde moj sharf?', consistently scores low for Pleasant, and also low for Bored and Sad.

English wh-question 3, 'Chto vy xotite pit'?', echoes this pattern more weakly. Russian yes-no question 4, 'U Mashy est' chasy?', is always lower on the Sad, Bored and Pleasant scale. English statements 1 and 2 are lower for Sad, Bored, Pleasant and Indecisive than other utterances. The exclamations of both intonation types are understandably rated at the low end of emotional categories such as Sad and Bored. Following is a table of grammatical categories and the emotions against which they did not score significantly.

Table 7
Significant Lows

I
Russian Statements
- Arrogant
- Critical
- Indecisive
- Pleasant

II
Russian Wh-questions
- Bored
- Pleasant
- Sad
- Surprised

III
Russian Yes-No questions
- Bored
- Indecisive
- Pleasant
- Polite
- Sad
- Surprised

IV
Russian Exclamations
- Angry
- Bored
- Critical
- Indecisive
- Pleasant
- Polite
- Sad
- Surprised

V
English Statements
- Angry
- Indecisive
- Surprised

VI
English Wh-questions
- Arrogant
- Bored
- Indecisive

VII
English Yes-No questions
- Angry
- Arrogant
- Critical
- Sad

VIII
English Exclamations
- Angry
- Arrogant
- Bored
- Critical
- Sad

The final factor tested, S (Subjects), yielded a significant F-ratio for all ten emotion/attitude types, indicating a very high degree of individual variation among the nine subjects.

Table 8 - Subjects (S)

Emotion	Sum of Squares	D.F.	F-ratio	Probability
Angry	2932.503	8	173.82	0.0000
Arrogant	3521.0035	8	92.82	0.0000
Bored	2244.5000	8	129.01	0.0000
Critical	3009.5868	8	97.23	0.0000
Indecisive	2415.125	8	160.08	0.0000
Pleasant	2850.1250	8	138.08	0.0000
Polite	3206.6701	8	140.24	0.0000
Relaxed	3133.6806	8	489.69	0.0000
Sad	1927.1701	8	114.32	0.0000
Surprised	3334.7222	8	105.83	0.0000

The large variation was not spread out uniformly over the nine subjects. As the graph on the next page shows, the culprits are subjects 1 and 4, especially the former, whose scores were consistently lower than the other subjects'. The remaining subjects were quite consistent in their answers which is not reflected by the F-ratios. If the sample size in the experiment had been larger, subjects 1 and 4 would have been eliminated from the data pool.

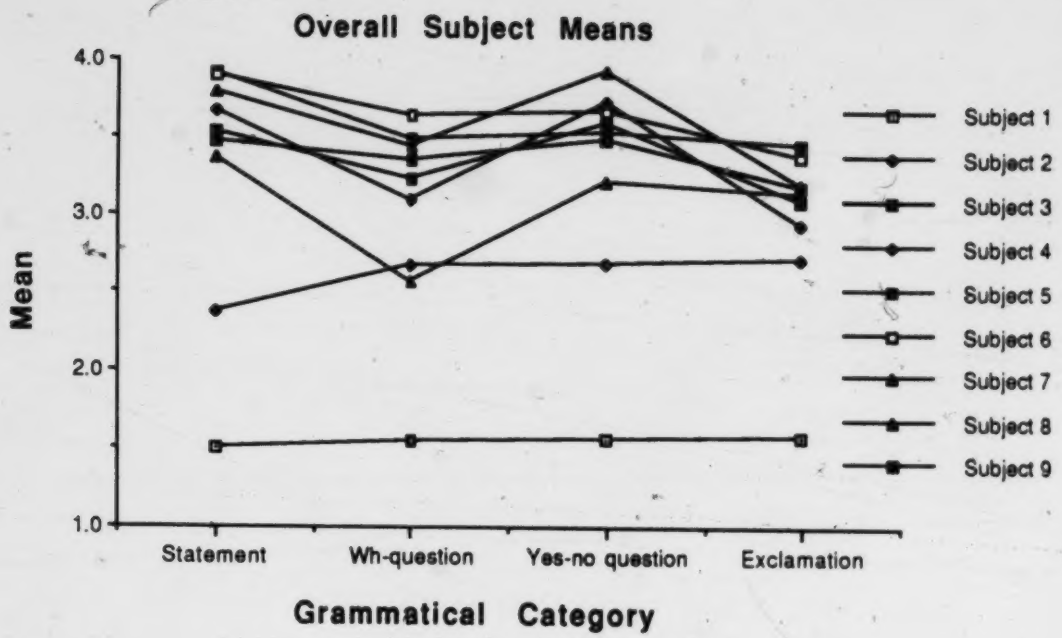
Overall Subject Means
4.0
3.0
2.0
1.0
Mean
Statement
Wh-question
Yes-no question
Exclamation
Grammatical Category
Subject 1
Subject 2
Subject 3
Subject 4
Subject 5
Subject 6
Subject 7
Subject 8
Subject 9

Figure 17

V. Discussion and Conclusions

The experimental results will first be compared to the predictions made at the end of Chapter III and then discussed with reference to the theories and viewpoints examined in the literature review.

A. Predictions

The prediction made for declarative statements was that there would not be a sharp difference between Russian and English intonation in emotional reaction. This was borne out by the results as statements in both intonation types were considered to be highly Bored and Relaxed by the subjects. Both the Russian and English statement contours were level enough in overall shape to correspond to interpretations by Crystal and Lindsey who equate level tones with 'non-commital attitudes' and 'absence of emotional involvement' on the part of the speaker with Boredom. The prediction that the English statements would be considered more Indecisive than their Russian correlates did not hold true. The emotion Indecisive did not play a significant role in either language's statement intonation. English statements did, however, score low for Angry, although Arrogance was not a significant factor. Leed's assertion (p. 67) that the 2'31# contour used frequently in English neutral statements would sound 'insistent' for a netural context in Russian was not supported by the experiment. The type of statement contour Leed seemed to be

referring to is the type used in answer to a question. There is possibly a higher rise-fall on the nucleus, which causes a Russian to consider it non-neutral or emotionally coloured. The statement used in the present experiment, however, is the type stated discourse-initially. This statement type seems to have a much lower rise-fall on the nucleus. This may render the utterance more neutral to the Russian subjects.

Results for wh-questions were more varied in nature between the two intonation types than had been predicted. That English wh-questions were significantly more Surprised in emotion than Russian ones was expected. This latter result corrobrates the claim in Russian for Everybody that when English speakers use a contour similar to IK-4 for Russian wh-questions, the result for the Russian speakers is "emotional overtones of surprise, uncertainty, disbelief..." (43) Leed's prediction of 'insistent' overtones for English wh-questions was reflected in the experiment by low scores for Pleasant, Polite and Relaxed. This is in contrast to the significantly high Polite scores for Russian wh-questions.

English yes-no questions were predicted to have a higher Bored score than Russian ones because of their relatively smoother overall contour shape. It turns out that Bored was not a significant emotion in this case. It was the emotion Angry which stood out as Russian yes-no questions scored surprisingly high for this emotion while the English equivalents did not. The prediction that English yes-no

questions would sound Indecisive to a Russian ear was supported by the results. The most visible result was how much more Surprised the English yes-no questions were than the Russian.

It was not clear before the experiment what degree of Surprise the Russian listeners would accord the English exclamations. It turns out that they were significantly higher in Surprise not just compared to Russian exclamations but to all other Russian syntactic categories. On the other hand, Russian exclamations were more Arrogant than English ones which was an unexpected result.

B. Discussion

The overall impression made by English contours on the Russian listeners was fairly positive. They were repeatedly associated with the emotions Indecisive, Pleasant and Surprised. The one notable exception to the pleasant impression was the category of English wh-question which continuously appeared in the results as significantly low for Polite and could therefore, by implication, be regarded as rude. The only salient difference between the Russian and English versions of the wh-questions usually discussed in the literature has to do with the "increased energy and tension" (Russian for Everybody 1986: 25) on the emphasized word in the Russian contour. This does not seem to be a large enough difference to produce such a striking result however, and indeed, in the control versions used in this experiment, Russian and English wh-questions

are more noticeably different in shape. The Russian contour is "somewhat like statement intonation" (RE 1986: 25) with a series of gradually falling steps. The English wh- contour is also similar to English statements but with a higher falling tone on the last word plus a higher tone overall. As Leed noted, the Russian listeners are perceiving the resulting stress on the last word as Impolite for a neutral question in Russian. The same fall also seems to add an element of Surprise which is inappropriate for a Russian wh-question.

The most surprising overall result of this study was the correlation of Russian in all four grammatical categories with negative emotional connotations. This is a strange twist to Leed's (1980) comment that Americans react with annoyance to the neutral Russian statement with its level pitch finding it expressive of Boredom and Indifference. The present study's finding is that it is their native Russian statement that the Russian listeners are finding more Boring than any other Russian or English category. To summarize these negative perceptions, Russian yes-no questions and exclamations were associated with the emotions of Angry and Arrogant respectively. The Russian statements and both types of questions scored low for Pleasant. This is in contrast to both English yes-no questions and exclamations which scored high for Polite and Pleasant in comparison. Russian intonational contours were more definitively categorized into Bored and Sad statements, Angry yes-no questions and Arrogant exclamations. How should these non-neutral,

negative reactions by the Russian listeners to their own native intonation contours and their seeming preferences for the English equivalents in many cases be explained? It would seem that they are reacting more like native English speakers given the same circumstances. A variety of explanations for this phenomenon may be considered.

The first is that the Russian subjects may be objecting to the control voice on the tape as Arrogant and Angry itself in character. This seems unlikely however, firstly because the control is a young, female voice and secondly, because it is only the Russian contours that are being classified this way, suggesting that a sweeping characterization of the voice itself is not being made. Furthermore, both the English and Russian intonation patterns were read by the same voice. The subjects are reacting to the Russian intonation specifically for some reason.

The author proposes that another explanation may lie with the fact that the subjects have lived in Canada for some years. They obviously use English outside the home in contact with English Canadians. It may be that their auditory perception has been acclimatized or desensitized to some of the prosodic differences between the Russian and English language. The constant contact with English may have submerged or suppressed certain intonational aspects of the Russian. English intonational elements may have become so ingrained in their speech that it has filtered through to the instinctive intonational

level of the native Russian language making it sound non-native in comparison to the now predominant English language. As a result, when the differences are produced in isolation in an experimental setting they not only react strongly to the English contours but to the Russian contours as well. The subjects may be indicating their objection to these 'non-native' sounding utterances by marking them high for negative emotions like Anger and Arrogance. This is the same type of reaction that has been predicted and recorded for English speakers who come into contact with a Russian accent.

Not all of the native versus non-native instinctive reactions can have been blurred or erased through contact with a second language, however, as demonstrated by those reactions by the subjects which were more in line with scholarly claims and hypotheses. The fact that English yes-no questions were considered more Indecisive and Surprised in character is consistent with a native Russian reaction to an English accent with its lack of decisive final fall in tone in this contour. This grammatical category contour is clearly resistant to change over a period of time in the second language environment of English. Of all four of the syntactic categories, the Russian yes-no question is the contour least like its English equivalent. Its rise in tone, distinctive by height and placement, while clearly marking the Russian yes-no question as emotionally non-neutral to the English ear, is strong enough to cause an equal reaction to the English counterpart in the Russian or even the Russian-anglicized ear, i.e., as

Indecisive and Surprised. The subjects still acknowledge the emotional neutrality of their yes-no question's sharp rise in comparison to the gradually rising English yes-no question.

These results demonstrate the phenomenon discussed by Bolinger (1978) and others, that emotional cues which accompany an utterance or syntactic category are fixed and specific to a given language and culture. The interdependence between a syntactic contour, its given emotional or attitudinal parameters and a particular language has also been illustrated convincingly by the present experiment.

The statement contours seem to be more susceptible to inter-language influence perhaps because the Russian statements are less clearly marked for neutrality when considered and heard in relation to the English statements, as both are very similar in contour shape. The fact that Sadness and Boredom were the emotions chosen by the subjects to express their negative reaction to the Russian statements is consistent with Torsueva's (1979) observation that, when given a choice of emotions, subjects characterize narrative statements most often with grief, sadness and dissatisfaction.

A final word should be said about the successful and not so successful aspects of the present experiment. The emotional/ attitudinal parameters used were patterned after experiments by scholars such as Ladd, Uldall, Crystal and others. The least successful parameter turned out be Critical in terms of how often it played a significant role in the results. It seemed to be the "odd man

out" among the other more general terms and may have been interpreted as being more specific in nature than the other emotions. The subject may have felt that a more specific or detailed context was needed to determine what or who or why the speaker was being critical of at the moment of speaking. This adds an extra lexical level not provided for in the experiment. It might be simpler for the listener to believe that the speaker was for some unknown reason Sad or Angry about something or generally Arrogant or Pleasant in character.

Another explanation might lie in the problem area that scholars such as Davitz and Van Bezooyen encountered with the testing of emotion identification. Perhaps the emotion/attitude Critical is not communicated best by intonational parameters such as pitch height and range. Additional lexical content may be required, or possibly another communicative parameter such as facial gesture or voice timbre, in order for Critical to be correctly interpreted. It is obvious from the present experiment's results that individually loaded sentences, can bring about higher scores for certain emotions or attitudes. e.g. exclamations and Anger.

On further consideration it is also apparent that Polite and Pleasant were too similar in nature to be significantly differentiated by the subjects. The related emotional parameter Relaxed was similar to Critical in that it was not significant in most situations. Again, perhaps Relaxed is not fully or adequately communicated by

intonation pattern. It may need augmentation by a vocal parameter such as voice timbre or by a visual one such as body position. Two or all three of these emotions might have been better incorporated into one general cover term such as Happy or Satisfied in order to measure the degree of satisfaction the speaker was expressing within the context at that given moment.

The division of the parameters into two types; temporary emotional states (Angry, Bored, Relaxed, Sad, Surprised) and attributional or personality traits (Arrogant, Critical, Indecisive, Pleasant, Polite) did not furnish any additional information as neither category was more successful in measuring subject response. Rather, as is clear from the above discussion, each parameter behaved individually in terms of its suitability to this task.

On reanalysis of the control intonation contours it is evident that the wh-question variant spoken by the native Russian speaker does not follow a standard IK-2 pattern which might have been expected. The contour uttered is closer in shape to IK-4 with its final rise, but has a double nucleus or focus. The final rise on this second nucleus categorizes the final word in the utterance as new information, not shared by the listener and speaker. In an IK-2, on the other hand, the wh-word is new information and is both stressed and pitched at the highest level. This modified IK-4 contour type was considered significantly Polite by Russian speakers because it does not presume that the listener has any knowledge of the discourse topic and is

therefore less demanding of a specific answer. It is probable that the equivalent utterance with an IK-2 would not score so high for Polite because it does presume knowledge by the listener of the item in question and requires a specific answer about that item. The control subject obviously assumed that the listener in this case had no knowledge of the existence of the uchebnik, sharf, etc. She therefore had to identify these items as new information in the utterance with a final rise. These alternative contours reflect the difficulty in having a control subject produce an appropriate neutral utterance without a pre-determined discourse situation or lexical context.

With future research possibilities in mind, it would be interesting to make tape recordings of the spontaneous Russian speech of the subjects used in this experiment, in order to determine exactly where and how the intonational overlap between the Russian and English language is occurring. Presumably the degree of intonational influence exerted by the English would vary with the number of years a particular subject had been living in Canada.

C. Conclusions

The aim of this study has been to examine contact between Russian and English closely enough to measure the expected resulting clashes in intonational meaning, in this case from a Russian language perspective. Some results have confirmed long-held observations about Russian and English intonational differences. The experiment

has also yielded, if not outright explanations, then at least some cues to the intonational behaviour which influences the Russian reactions to English intonation. The character of the subjects themselves have also provided depth to the study by increasing the complexity of the linguistic behaviour under examination. In effect there were two groups of subject responses, one from a native Russian perspective and one from a Russian emigré perspective. Admittedly this added variable renders the experimental base less consistent than had been originally planned for. Nevertheless, the results are still valid and worth consideration as an addition to the literature surrounding the study of foreign accent, and specifically as an investigation into the function of grammatical and emotional meaning in a cross-cultural setting.

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Appendix A

Instruktsija:

Proslushajte kazhdoe predlozhenie i otsenite po intonatsii emotsional'noe sostojanie, nastroenie, ili xarakter govorjashchego na semibal'noj shkale. Otsenite kazhdoe iz predlozhenij tol'ko po kachestvu, ukazannomu posle nomera predlozhenija.

Kachestvo	Stepen' kachestva (ne --------ochen')
1. Udivlena	1 2 3 4 5 6 7
2. Vezhliva	1 2 3 4 5 6 7
3. Prijatna	1 2 3 4 5 6 7
4. Skuchna	1 2 3 4 5 6 7
5. Spokojna	1 2 3 4 5 6 7
6. Serdita	1 2 3 4 5 6 7
7. Grustna	1 2 3 4 5 6 7
8. Nereshitel'na	1 2 3 4 5 6 7
9. Kritikuet	1 2 3 4 5 6 7
10. Vysokomerna	1 2 3 4 5 6 7
11. Spokojna	1 2 3 4 5 6 7
12. Vezhliva	1 2 3 4 5 6 7
13. Udivlena	1 2 3 4 5 6 7
14. Grustna	1 2 3 4 5 6 7
15. Serdita	1 2 3 4 5 6 7
16. Prijatna	1 2 3 4 5 6 7
17. Vysokomerna	1 2 3 4 5 6 7
18. Skuchna	1 2 3 4 5 6 7
19. Nereshitel'na	1 2 3 4 5 6 7
20. Serdita	1 2 3 4 5 6 7
21. Spokojna	1 2 3 4 5 6 7
22. Skuchna	1 2 3 4 5 6 7
23. Udivlena	1 2 3 4 5 6 7
24. Grustna	1 2 3 4 5 6 7
25. Kritikuet	1 2 3 4 5 6 7
26. Nereshitel'na	1 2 3 4 5 6 7
27. Vysokomerna	1 2 3 4 5 6 7

Appendix B

Comparison Table

for Intonation x Grammatical Type (IT) Significance

I--Russian Declarative Statement
II--Russ. Wh-question
III--Russ. Yes-no question
IV--Russ. Exclamation
V--English Decl. Statement
VI--Engl. Wh-question
VII--Engl. Yes-no question
VIII--Engl. Exclamation

Angry

Mean pairs	Tukey .05	Scheffé .05	Scheffé .01
III, VIII	**	**	*
III, VII	**	**	*
III, V	**	**	*
III, IV		**	
III, I		**	
VI, VII	**	**	*
II, VIII	**	**	*
I, VIII		**	
IV, VIII		**	

Arrogant

Mean Pairs	Tukey .05	Scheffé .05	Scheffé .01
III, VIII	**	**	*
III, I	**	**	
IV, I	**	**	
II, VIII	**	**	
II, I	**	**	*
V, VIII		**	
IV, VIII	**	**	

Bored

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
I, VI	**	**	*
I, II	**	**	*
I, IV	**	**	*
I, VIII	**	**	*
V, VI	**	**	
V, II	**	**	
V, III	**	**	

Critical

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
V, VII		**	

Indecisive

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
VII, IV	**	**	*
VII, V	**	**	*
VII, I	**	**	*
VII, III	**	**	*
VII, VI	**	**	
VII, II	**	**	

Pleasant

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
VIII, VI	**	**	
VIII, III	**	**	

V, VI	**
V, III	**
VII, VI	**

Polite

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
VIII, VI	**	**	*
VII, VI	**	**	*
V, VI	**	**	*
II, VI	**	**	
I, VI	**	**	

Sad

Mean Pair	Tukey	Scheffé	
	.05	.05	.01
I, IV	**	**	*
I, II	**	**	*
I, VIII	**	**	*
I, III	**	**	*
I, VI	**	**	*
I, VII	**	**	*
I, V		**	

Surprised

Mean Pairs	Tukey	Scheffé	
	.05	.05	.01
all	**	**	*

-- the 16 significant mean pairs were all significant under both test conditions

Appendix C
Intonation Contours

Russian

R1 Moj djadja zabyl svoj doklad.

R2 On el sup kazhdyj den'.

R3 Moj Papa sporil s kazhdym professorom.

R4 My prishli v dva chasa.

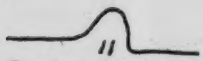
R5 Gde moj sharf?

R6 Kto vzjal uchebnik?

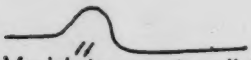
R7 Chto vy xotite pit'?

R8 Kak uchenik chitaet?

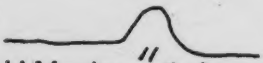
R9 On ushel v shest' chasov?



R10 On kupil bilety?



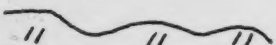
R11 Vy idete vo vtornik?



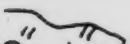
R12 U Mashy est' chasy?

R13 Vot moj dom!

R14 Eto mnogo deneg!



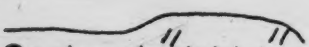
R15 Chto za vkusnyj tort!



R16 On glupyj!

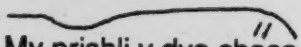
English

E1 Moj djadja zabyl svoj doklad.



E2 On el sup kazhdyj den'.

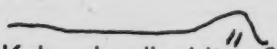
E3 Moj Papa sporil s kazhdym professorom.

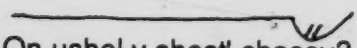

E4 My prishli v dva chasa.

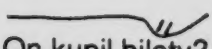
E5 Gde moj sharf?

E6 Kto vzjal uchebnik?

E7 Chto vy xotite pit'?


E8 Kak uchenik chitaet?


E9 On ushel v shest' chasov?


E10 On kupil bilety?

E11 Vy idete vo vtornik?

E12 U Mashy est' chasy?

E13 Vot moj dom!

E14 Eto mnogo deneg!

E15 Chto za vkusnyj tort!

E16 On glupyj!